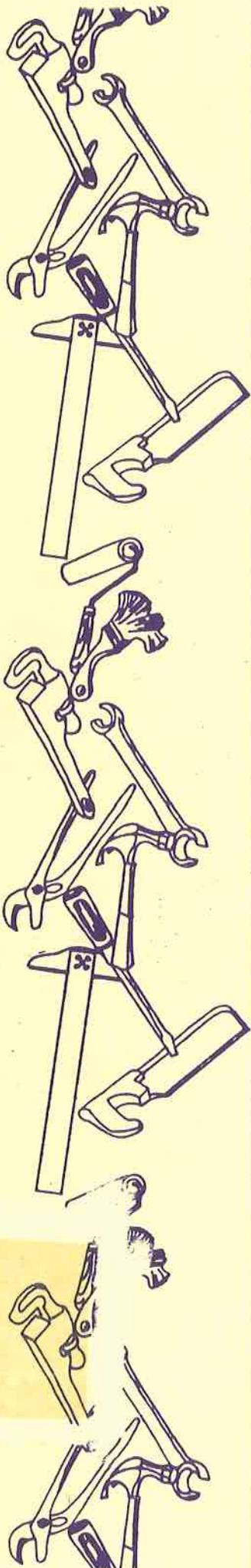


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# **WOMEN in the TRADES**

**A study of apprenticeship in Minnesota**

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STATE OF MINNESOTA

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Council on the Economic Status of Women  
400 SW, State Office Building, St. Paul MN 55155

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Women in Colonial America often worked in skilled crafts such as printing, sawmill operation, carpentry, and eyeglass grinding. They were usually employed in family businesses located in or near their homes. At the time of the Industrial Revolution, however, paid work was separated from work in the home, and occupations became more closely linked to sex roles. Very few women have been employed in the skilled trades since that time, with the exception of the two World Wars. In World War II, for example, 2.9 million of the 6.7 million women who entered the labor force were employed as craft workers, operatives, or laborers.

Apprenticeship is the process through which individuals learn to become skilled craft workers. Today apprenticeship is a formal arrangement involving employers, unions, vocational-technical schools, and government. Some vestiges remain, however, of the informal apprenticeship system used in medieval Europe -- for example, Minnesota statutes provide for legal action "against a master for breach of an indenture of apprenticeship."

In this report, "apprentice" means a person engaged in study and on-the-job training for a skilled trade and enrolled in a program which is registered with the Apprenticeship Division of the Minnesota Department of Labor and Industry. Such programs are subject to a number of state and federal regulations, as distinguished from programs designed and implemented by a particular employer which do not have public accountability requirements.

In March 1979, there were 7,521 active apprenticeships in Minnesota. Of these, 91 -- or 1.2 percent -- were women.

Although women have been entering the labor market in unprecedented numbers in recent years, women continue to be concentrated in traditionally female occupations. According to the most recent data for Minnesota, women account for four of five clerical workers and more than two of three service workers. These occupations are characterized by low pay, few benefits, and little chance for advancement. Sex-segregated employment has been identified as a key factor in the economically disadvantaged position of women.

Patterns of occupational segregation and lower pay for women have changed little in the past quarter century. In 1977, median annual earnings for persons employed full-time year-round were \$14,626 for men and \$8,618 for women -- a relationship of about 60¢ on the dollar.

The apprenticeship system offers women the chance to expand their employment opportunities and to receive wages while training for skilled jobs. The ten

"apprenticeable" occupations in Minnesota with the largest number of apprentices are: carpenter, electrical wirer, sheetmetal worker, plumber, iron worker, bricklayer, pipefitter, painter/decorator, machinist, and auto mechanic.

In the 1978 Minnesota Salary Survey published by the Department of Economic Security, median monthly earnings for these occupations ranged from \$793 for machinists in the southwestern part of the state to \$1,978 for pipefitters in the southeastern part of the state. For full-time year-round work, this represents yearly incomes ranging from \$9,516 to \$23,736, considerably more than women typically earn. In addition, persons in the trades are very likely to be represented by labor organizations and to receive the benefits of collective bargaining agreements: fringe benefits and adjustments for cost of living increases in addition to relatively high wages.

Apprenticeship programs combine on-the-job training with classroom instruction. Required coursework usually includes technical training, mathematics, and science, provided through classes at a vocational-technical school, trade college, or through correspondence courses. A minimum of 2,000 hours of on-the-job work experience is required for apprentices registered with the U.S. Department of Labor. The apprentice is taught by a skilled journeyman, a person who has completed an apprenticeship. The apprentice receives starting pay usually set at about 50 percent of the journeyman rate, with regular increases provided for satisfactory progress.

Most Minnesota apprenticeship programs last four years, although some are as short as one year. Almost two-thirds of apprentices are in programs managed by a Joint Apprenticeship Committee composed of one or more employers and one or more unions. Other programs are sponsored by employers only or by unions only.

Most such programs are regulated by the Minnesota Department of Labor and Industry. As of July 1979, women accounted for 48 percent of all employees of this agency. However, none of the agency's 12 managers are women, and only 17 percent of the agency's 60 professional employees are women.

The U.S. Department of Labor recognizes about 450 "apprenticeable occupations," although about 95 percent of all apprentices work in just 53 occupations. Most of these occupations are in three basic industries: construction, accounting for 56 percent of all apprentices nationally; manufacturing, with 24 percent of all apprentices; and services, with six percent of all apprentices.

The service industries are of special significance to women seeking employment opportunities, because this industry group has been identified as the fastest-growing sector of the labor market. It encompasses trades such as auto mechanics, which used to be learned informally, as well as technical trades related to

health care, traditionally a "woman's field."

A number of laws and regulations prohibit sex discrimination and/or require affirmative action in apprenticeship. Federal regulations require that program sponsors set goals for entering apprentices for women at a rate which is not less than 50 percent of their proportion in the local labor market. This will result in an entry level goal of 20 percent women in most parts of Minnesota. Additional regulations set goals for the employment of women in construction by employers holding federal contracts or subcontracts in excess of \$10,000. These goals are 3.1 percent women as of May 1979, 5.0 percent in May 1980, and 6.9 percent in May 1981.

As a result of these regulations, the representation of women in apprenticeships is beginning to increase, although their numbers remain extremely small. The proportion of female apprentices in the nation increased from 2.0 percent in June 1977 to 2.6 percent in June 1978 -- a rate of change that would lead to 50 percent female apprentices in the year 2057.

Minnesota ranks well below the national average in the proportion of its apprentices who are women, less than two percent. In June 1978, the state ranked forty-eighth of the 54 states and territories in this respect. One reason may be that other states, but not Minnesota, recognize apprenticeships in cosmetology, a trade which accounts for 12 percent of registered female apprentices nationally.

Cancellation rates for apprenticeships tend to be lower in Minnesota than nationally for both men and women. While women apprentices nationwide have a slightly greater tendency not to complete programs -- 9.7 percent for women compared to 7.8 percent for men -- women in Minnesota have a 1.8 percent cancellation rate compared to a 5.0 percent rate for their male counterparts.

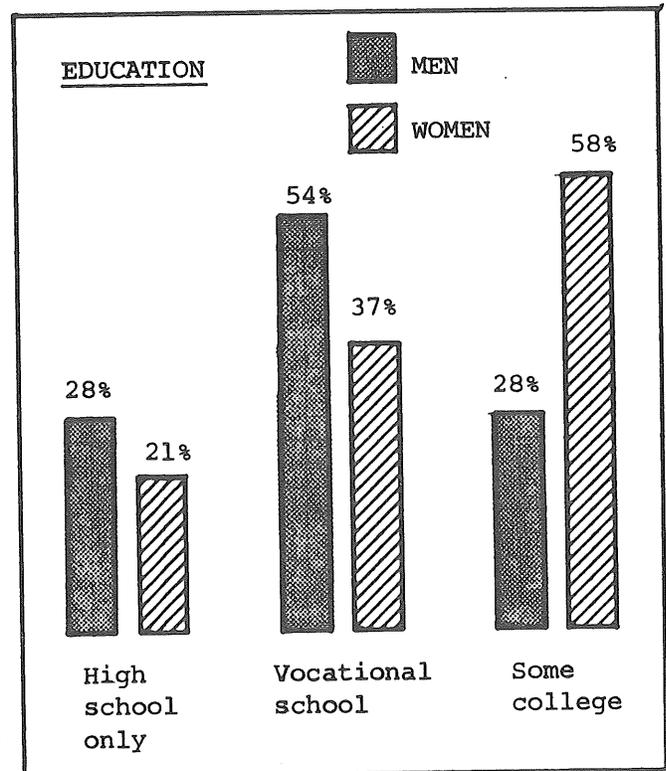
As of December 31, 1978, Minnesota women in registered apprenticeships represented 31 different trades of the 152 trades statewide. Trades with more than two female apprentices included: carpenter, plant attendant, watchmaker, bookbinder, electrical wirer, painter/decorator, mapper, and offset platemaker.

In the Spring of 1979, a survey was sent to all 91 female apprentices registered with the Minnesota Department of Labor and Industry. For purposes of comparison, a similar survey was sent to a random sample of 165 male apprentices. Fifty-seven women and 85 men responded, accounting for more than half of those contacted in each group. While the results of the survey are not necessarily representative of all apprentices, they do provide some insights into some of the similarities and differences between men and women in the trades.

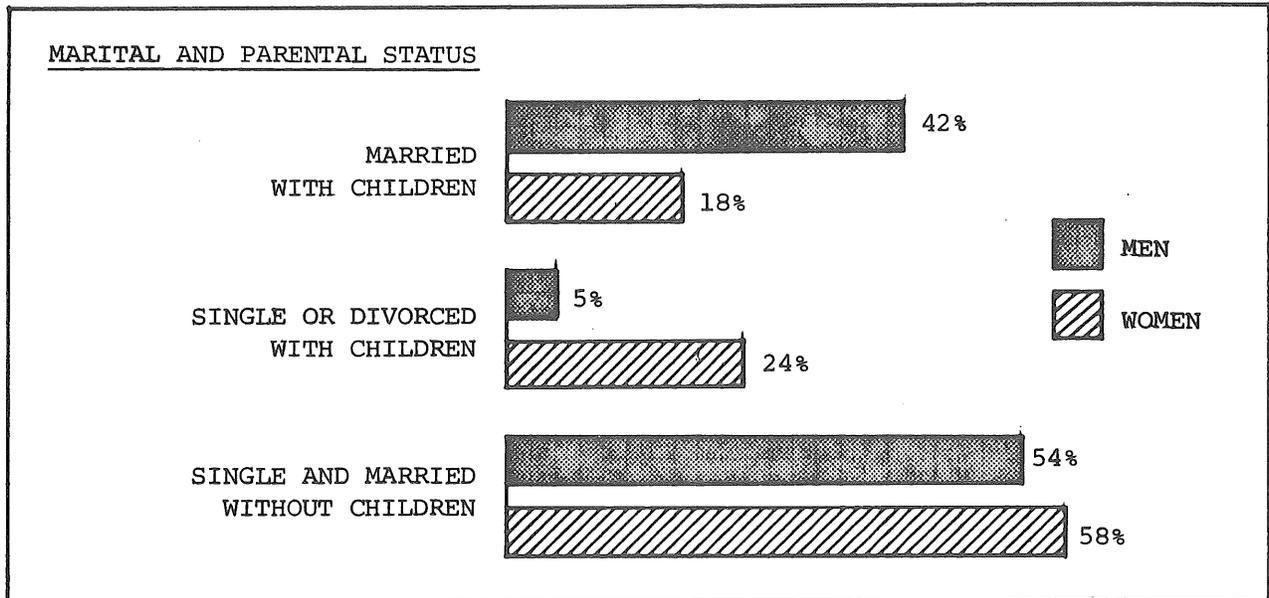
Fifty-one different trades were represented among survey responses. The most frequently reported were: carpenter, electrician, painter/decorator, bricklayer, and machinist. Both men and women were likely to be carpenters or electricians, while women were more likely to be painter/decorators and men were more likely to be bricklayers.

Women who responded to the survey tended to be slightly older than male respondents, with an average age of 28 for women and 26.5 for men. The age range was 19 to 59 for women and 18 to 40 for men. More significantly, the women had higher levels of educational attainment -- 58 percent of the women had some college education compared to 28 percent of the men, and 23 percent of the women had four or more years of college compared to only four percent of the men. In addition, the women were more likely to be entering the trades as a second career: five indicated that they had been office workers, one had been a licensed practical nurse, and one had been a teacher.

There were also substantial differences in marital status between the male and female apprentices. The men were much more likely to be married with spouse present than their female counterparts, 61 percent compared to 27 percent, and the women were much more likely to be divorced. Thirty-one percent of the men and 45 percent of the women had never been married.



About half of both groups had children, but the women were much more likely to be single parents -- 23 percent of the women but only five percent of the men had children living with them but no spouse present. The number of children for men ranged from one to five, with an average of 1.2 children. For women, the number ranged from one to seven, with an average of 1.1.



Job satisfaction was very high for both male and female apprentices. Only 15 percent of the women and 16 percent of the men said they were dissatisfied. Women were most likely to list "good working conditions" or "liking co-workers" as reasons for their satisfaction. Many also indicated that they enjoyed the physical challenge of their jobs, working outdoors, and having a tangible product. Men were more likely to give "job security" or "stability" as their reasons for satisfaction. Both men and women said they enjoyed the variety in their jobs and that they found the work interesting.

The following comments were typical of women's responses:

*"I love the work. I love being outside and moving around all day, also having a valuable skill is important." (apprentice carpenter)*

*"I have a good-paying, highly satisfying job of making people's places beautiful. I can see where I start and where I finish and the caliber of work I've done. I've got freedom for time off and for a family, too." (apprentice painter/paperhanger)*

*"I enjoy the work, being my own boss, and getting the salary I need to raise my five children." (apprentice truck driver)*

*"I'm always learning. I just love it. It's strenuous work, I'm usually exhausted, but it's great." (apprentice auto mechanic)*

A number of women recommended the skilled trades to other women, as more interesting and rewarding than "women's work":

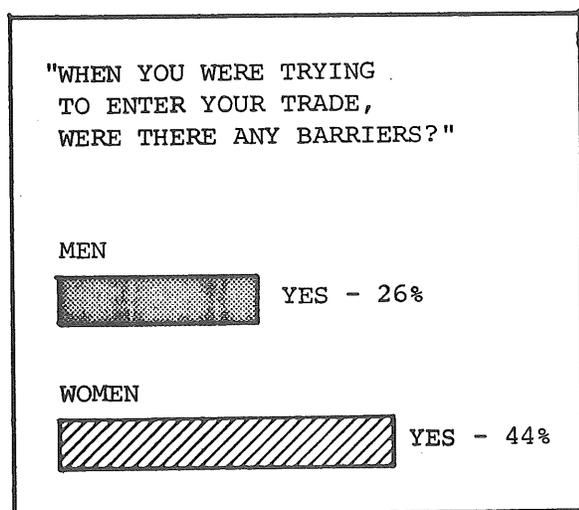
*"Many women are not knowledgeable about the benefits of trade and union trade jobs. Many work for \$8,000 a year instead of \$18,000. It's a waste of their potential." (apprentice advertising typographer)*

*"I feel I have accomplished something at the end of the day, a feeling I never had while I was a secretary. Also it's great to know how strong a woman can become doing physical work -- it's great!" (apprentice carpenter)*

*"I highly recommend the trades for other women who are frustrated with office work, looking for constant change, growth and personal satisfaction." (apprentice painter/paperhanger)*

Both groups mentioned financial rewards or good benefit plans as a factor in their satisfaction, but this response was more common for women. Interestingly, three of the men who said they were not satisfied gave "not enough money" as their reason, while none of the women identified this as a problem. Reasons for dissatisfaction which were shared by both men and women included that they were not respected by others, that there were not enough opportunities for advancement, or hard physical work in cold weather.

Perhaps not surprisingly, female apprentices were very conscious of their status as non-traditional workers. Despite their general satisfaction, 25 of the women, or almost half of those who responded, said they had some negative experiences related to their sex: negative attitudes on the part of co-workers or employers, unusual pressure, sexual harassment, or discrimination. Only two of the women felt that they were at a disadvantage because they were not as physically strong as men. On the other hand, five said that being a woman helped them to be accepted in the program, because "the union said the next apprentice was going to



be a woman" or because "the newspaper was talking up women in the trades."

Each apprentice was asked whether he or she had experienced any barriers when trying to enter their trade. "Yes" answers were given by 44 percent of the women, while only 26 percent of the men gave this response. Barriers related to their sex accounted for the much larger number of women in this category -- more than half the barriers encountered by women were specifically related

to their sex. "Men don't think women belong," and "the guys in the plant don't think women can handle it" were comments which typified many of the women's responses. Other comments included:

*"I worked on the machines for four years before I got the apprenticeship." (spiral binder)*

*"If it hadn't been for CETA, I wouldn't have gotten in." (apprentice carpenter)*

*"It's hard to get people to take you seriously." (apprentice cabinet maker)*

*"The men neglect to show me or tell me about special tools to do a certain job even if they see me struggling. They think a woman should be at home, not working at all in any field." (apprentice auto mechanic)*

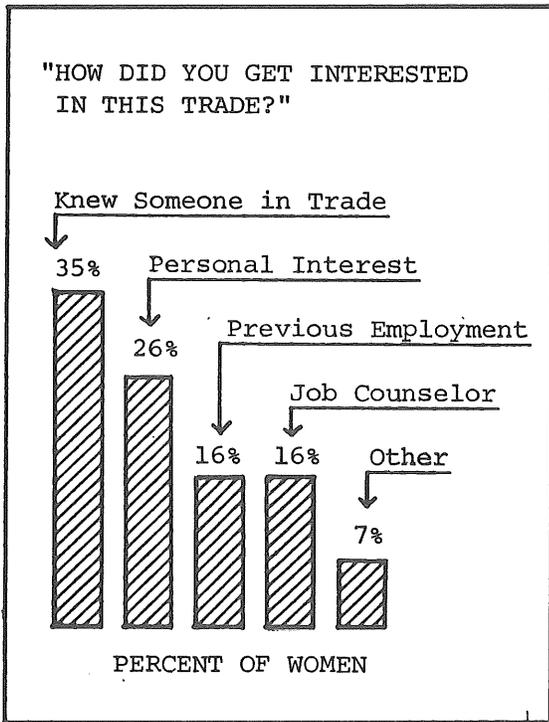
*"I am constantly being harassed into resigning. The discouragement for the last three years is going to make it awfully rough the last year." (apprentice spiral binder)*

Responses on the male surveys reinforced the women's view that they are not always welcome in the trades. "I personally feel the trades are too rough for women," wrote one pipefitter, and "No, I hope not" was the answer of a male bricklayer when asked if his union is receptive to women members. An electrician stated that "women let the company do what it wants" in response to the question about women in union leadership positions.

In contrast to the barriers related by the women, the problems most often encountered by the men were related to lack of job openings or long waiting lists for acceptance into a program. Some men, but no women, mentioned that you needed "to know someone" to get into the trades. Both men and women, however, mentioned a problem in "needing to be in a union to get a job, and needing to have a job before joining a union."

Several survey items asked how the apprentices became interested in their trade, how they learned about their particular program, and what resources they found helpful. There were surprisingly few differences between the men and women on these items. In general, formal information and recruitment systems seemed to work about equally well for both men and women, although informal methods -- personal interest, previous work experience, friends or relatives in the trade -- were by far the most frequent way in which both men and women got interested in a trade and learned about a particular program.

"Knew someone in the trade" was the most frequent response to the question, "How did you get interested in this trade?" More than one-third of all respondents -- 37 percent of the men and 35 percent of the women -- gave this as their reason.

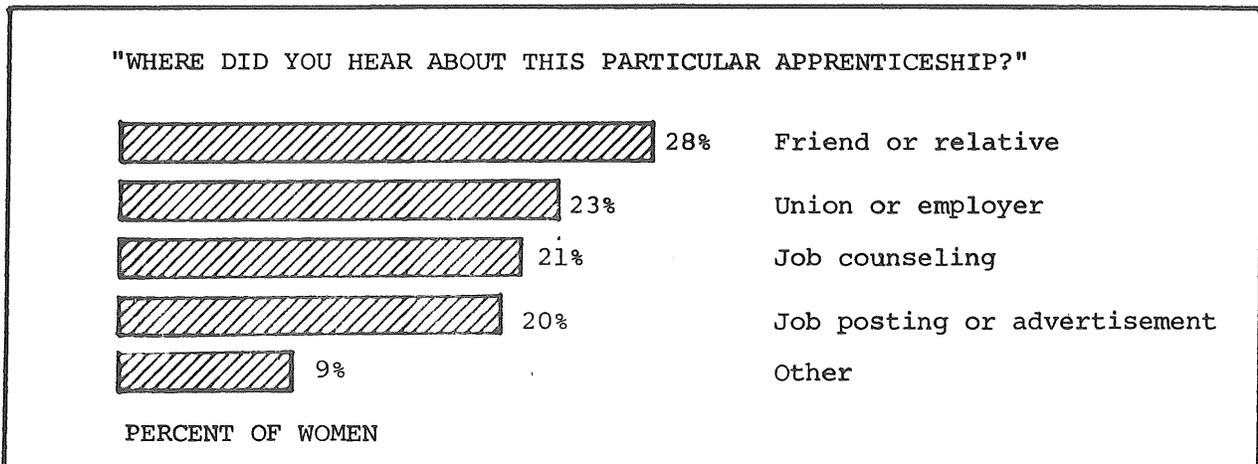


"Personal interest" was listed by 35 percent of the men and 26 percent of the women to this question; and previous job experience accounted for the interest of 12 percent of the men and 16 percent of the women. School and job counselors, the state employment service, and other systems related to employment counseling were responsible for developing interest in only 16 percent of the female apprentices.

An exception to the poor showing of formal job counseling services, however, is the Labor Education Advancement Program, which accounted for the interest of seven percent of the women. LEAP is funded by the Department of Labor and administered through local Urban Leagues. Its purpose is to recruit and encourage minorities

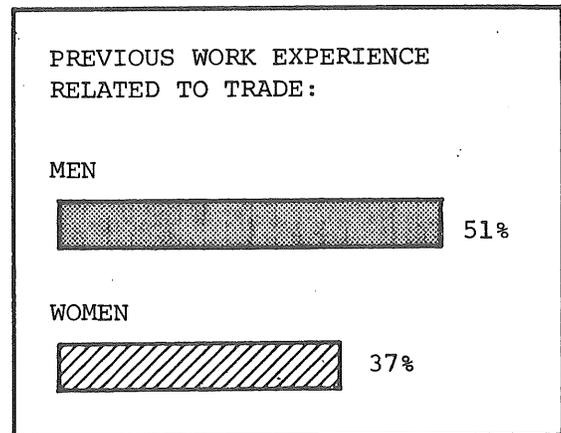
and women in apprenticeship programs, and the survey indicates that it is having positive results.

When asked, "Where did you hear about this particular apprenticeship?", respondents again noted that their most likely source of information was "friends and relatives." Thirty-five percent of the men and a slightly smaller proportion of the women -- 28 percent -- gave this answer. Almost one-quarter of the women heard about their program through a union or an employer, while less than one-tenth of the men listed this as their source of information. Job postings and advertisements accounted for informing 30 percent of the men and 19 percent of the women; and again formal employment counseling services provided information for only one in five



of the apprentices.

The most striking differences in backgrounds of male and female apprentices were in previous related experience and education. Slightly more than half of the men, but only about one-third of the women, had worked in related fields before entering their apprenticeship. Although women were considerably more likely to have attended college, they were less likely than the men to have attended a vocational-technical school -- 55 percent of men compared to 44 percent of women had some prior vocational training, either in high school or in an area vocational-technical institute after high school. In addition, several of the women mentioned the disadvantage of inadequate coursework in high school; "Not having had drafting in high school, or advanced math," was listed as a barrier to the trades by one female apprentice. One-third of the men, but only one-tenth of the women, had taken at least one vocational course while in high school.



Women were also less likely than men to have attended vocational school immediately after graduating from high school -- 17 percent compared to 31 percent of the men who responded. For women the average time between high school and vocational school was 7.3 years. Comments made by women about their educational experiences included:

*"When I was coming into the trade my high school counselors thought I was crazy and tried to talk me out of it." (apprentice electrician)*

*"Because I was the first woman to ask for a term away from school, I was turned down. I guess it's not so good to be the first in everything." (apprentice carpenter)*

*"I was in school with three other women and worked with no other women. The novelty is felt constantly." (apprentice drywall taper)*

*"The CETA trainer we had was very understanding with everyone and made you feel you COULD do it. There should be more like him." (apprentice carpenter)*

Although women who responded to the survey were less likely than men to be union members, a large majority of both groups -- 80 percent of the women and 89 percent of the men -- belonged to a union. Eight of 11 women, and one of nine men, who were not members noted that their jobs were non-union.

Attendance at union meetings was also high for both groups, but higher for men at 77 percent than for women at 65 percent. Several women mentioned family responsibilities as a barrier to union activity:

*"I'm in the union, but I haven't attended any meetings. I am away from my children so much during the day, so I like to be home with them at night." (apprentice carpenter)*

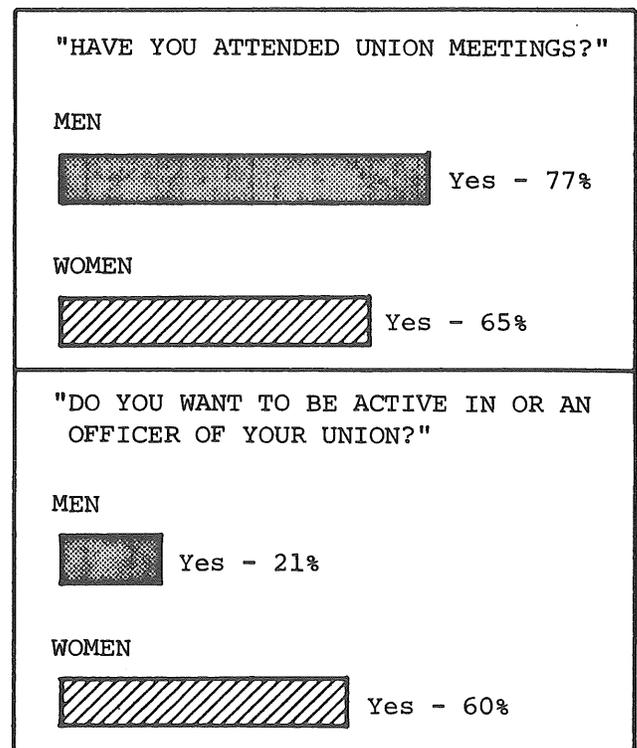
Even though women were less likely to be members and less likely than men to attend union meetings, many expressed a desire to be more active in their unions: 60 percent of the women, but only 21 percent of the men, were interested in becoming officers of the union or being active in some way.

Each apprentice was asked if he or she felt the union was responsive to women members. Almost three-fourths of both men and women said "yes," with women feeling somewhat more positive in this area. About half of each group also felt that the union was "responsive to women in power positions." One woman said, "I have had a good reception at union meetings, but others have been raked over the coals." Generally, however, female apprentices see their unions as a helpful resource, many of

them having initially become interested in their programs through union sources.

When asked about their goals as workers in the trades, men and women in the survey were very similar in their aspirations: 64 percent of the men and 62 percent of the women said they were interested in holding a management position in their trade. Similarly, 42 percent of the men and 41 percent of the women could foresee themselves being self-employed as a contractor in their trade.

Women were asked several questions about resources that might have been helpful to them, or that they thought would be helpful to other women considering the skilled trades. Only eight percent did not feel that resources were needed. Sixty-five percent felt it would have been easier for them if they had known another woman already in the trades. Only two women said they had this advantage. Several indicated the lack of other women in their jobs was a serious disadvantage.



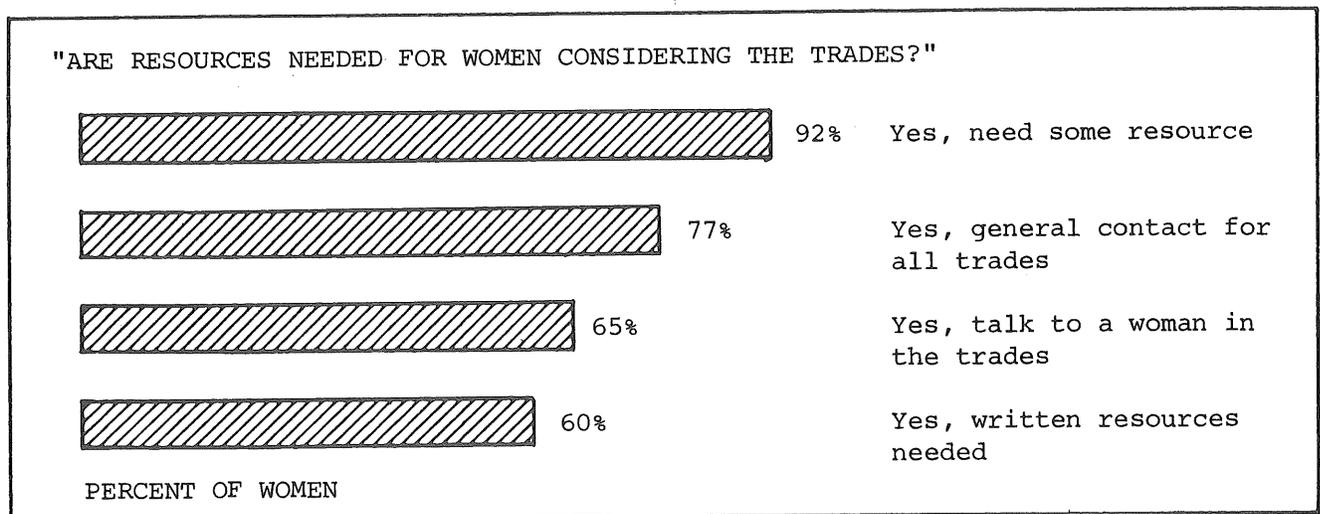
Sample comments included:

*"I have been treated quite well by both men and women. I can only say I do wish there was another woman in my shop so we could talk."*  
(apprentice printer)

*"If I could request any information, it would be from other women in the trades with small children. The general construction worker has no idea of what is involved in raising children or arranging for their care."* (apprentice carpenter)

*"My biggest problem was finding other women carpenters to talk to about what the job is like."* (apprentice carpenter)

Listed as other possible resources in the survey were a general resource which could provide information about all the trades, a contact for each specific trade, and a booklet written by women for women, summarizing opportunities in the trades. "General contact for all trades" was considered most helpful, followed by "talk to a woman in the trades." Many also thought a booklet for women and a contact for each specific trade would be helpful.



Women were asked whether they wanted to know more about their legal rights in four specific areas: affirmative action, personnel matters such as absences and terminations, labor-management relations, and maternity leave. Only three women said they had this information already, whereas 37 women said "yes" to at least one area. Sixty-four percent wanted to know more about personnel matters, 62 percent were interested in labor-management relations, and 57 percent wanted more information about affirmative action laws. A somewhat smaller proportion, 43 percent, wanted to know more about maternity leaves.

In many ways, female apprentices are surprisingly like their male counterparts. Both men and women learned about their careers primarily as a result of personal contacts rather than through more formal channels. Women were about as likely as men to be union members. Both male and female apprentices were highly satisfied with their jobs and found the work to be challenging and rewarding.

Women in apprenticeships, however, are more likely than their male counterparts to have a college education. Their background and experience is less likely to have included vocational programs and job experience related to their trade. The survey also showed that women were more likely to be divorced and to be single parents. The women who responded reported experiencing barriers more often than male respondents, and had to overcome more obstacles to enter and stay in the trades. The women had more positive attitudes toward their unions, and were more likely than men to express an interest in active participation in their union.

By definition, the women who responded to the survey are not typical of all women or even of all employed women. They are a small group -- often the only woman in a male-intensive occupation. There is no "typical" female apprentice, since respondents have widely varying educational backgrounds, previous jobs, and family patterns. These women, however, provide a generally encouraging picture. Although they identified many obstacles, they seem to have ignored or overcome most barriers. As a result, they are highly satisfied with their jobs, optimistic about their careers, and eager to encourage other women to join them.

## PUBLIC INFORMATION

Information about careers in the skilled trades should be more widely available to women, especially those in high school or post-secondary education, those seeking career changes, and those receiving public assistance. To increase the numbers of female apprentices, efforts should be made by all government agencies related to apprenticeships, apprenticeship program sponsors, state employment services, and educational institutions.

● The position of Women's Coordinator should be established in the Department of Labor and Industry Apprenticeship Division, to develop and distribute written materials, to serve as a resource for women considering apprenticeships, and to provide assistance to state-subsidized construction projects in recruiting women.

● State employment services and public assistance-related employment programs should provide apprenticeship information to women and assist them with placement. Employees of these agencies and agencies related to apprenticeship could benefit from cross-training in job functions and from job exchange programs.

● Centralized statewide sources of information about all trades such as the Apprenticeship Information Centers should consider methods of making their services more accessible to women.

● Public service announcements on radio and television should be used to provide information on the trades and on specific apprenticeship programs.

● The Department of Labor and Industry should prepare and distribute to new apprentices information about their rights under anti-discrimination laws, including complaint procedures used by state and federal agencies.

● Apprenticeship Information Centers and the Department of Labor and Industry should make available upon request the names of current women apprentices who are willing to serve as resources for other women in the trades and women considering the trades as a career.

● Whenever possible, apprenticeship program sponsors should advertise openings to the general public. When bargaining agreements restrict notices to current company employees, such information should be made available to office staff as well as production staff.

● Funding for the Labor Education Advancement Program component which seeks to recruit and encourage women in apprenticeships should be continued.

## EDUCATION

Greater efforts are needed to provide women with information and training which will prepare them for the trades and for other non-traditional careers.

- Employment counselors in high schools, secondary vocational centers, and area vocational-technical institutes should distribute information about apprenticeships to women.

- Additional efforts should be made at the high school level to encourage female students to take industrial arts, mathematics, and science courses.

- Financial assistance programs and offices should distribute information about apprenticeships as an opportunity for career education in which the student is paid while acquiring a valuable skill.

- Apprenticeship program sponsors and government agencies should cooperate with Community Colleges, which enroll a large proportion of women and a large proportion of older women, to provide associate degrees in apprenticeship-related training.

- Agencies such as the State Board of Electricity, the State Board of Health Plumbing Unit, and the Steamfitting Standards Division of the Department of Labor and Industry, which have responsibility for licensure of journeymen, should develop continuing education programs which include information about anti-discrimination laws and about the changing roles of women.

- Where appropriate, program sponsors should provide flexible study hours, flexible work hours and work shifts, and child care, to enable women and men with family responsibilities to enter and continue in apprenticeships.

## REGULATION AND DATA COLLECTION

Increasing the numbers of female apprentices should be a priority for all government agencies with responsibility for regulating programs and contractors. Further study of women currently in the trades should be undertaken, since providing support to them may be one of the best ways to encourage others.

- Existing laws and policies related to affirmative action and sex discrimination should be promptly and vigorously enforced.

- Minnesota Statutes 181.59, which provides for termination of state, county, and city contracts when the contractor is found to discriminate on the basis of race, creed, or color, should be amended to include sex as a prohibited employment criterion.

● Administrative rules establishing criteria for exempting apprenticeship programs from the law prohibiting age discrimination should be written and presented through the public hearing process. When final, these rules should be vigorously enforced.

● The Apprenticeship Advisory Committee and the Department of Labor and Industry should continue to oversee enforcement of current laws, continue to study selection procedures and other requirements which may have a disparate effect on women, and should study incentives for program sponsors to recruit female apprentices.

● More women should be hired in professional positions related to registering apprentices, providing apprenticeship information, and monitoring apprenticeship programs.

● Plans should be developed to increase the number of women as union leaders and officials.

● A number of newly developed fields and some traditional women's fields should be considered as possible "apprenticeable occupations": day care teacher, home health aide, dietetic cook, inhalation therapist, rehabilitation technician, pharmacy technician, and others.

● The Department of Labor and Industry should collect data on female apprentices who are racial minorities, to determine whether they have special needs and whether those needs are being addressed.

APPENDIX: EQUAL OPPORTUNITY IN EMPLOYMENT

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TITLE VII of the federal Civil Rights Act of 1964 prohibits discrimination based on sex for employers of 15 or more persons, labor organizations with 15 or more members, and labor-management apprenticeship programs.

EXECUTIVE ORDER 11246 prohibits discrimination based on sex by organizations performing work under a federal construction contract or subcontract exceeding \$10,000.

EQUAL EMPLOYMENT OPPORTUNITY IN CONSTRUCTION regulations of the Office of Federal Contract Compliance Programs require certain contractors and subcontractors to take specific affirmative action steps. Goals for the representation of women are set at 3.1 percent as of May 1979, 5.0 percent as of May 1980, and 6.9 percent as of May 1981.

EQUAL EMPLOYMENT OPPORTUNITY IN APPRENTICESHIP regulations of the U.S. Department of Labor require sponsors of apprenticeship programs to set a goal for women of not less than 50 percent of the proportion of women in the sponsor's labor market area. For example, since women account for 51 percent of the labor force in the Minneapolis area, sponsors with more than five apprentices must have a goal of at least 25.5 percent women in new apprenticeship classes. Programs which do not comply may be deregistered by the U.S. Department of Labor and the Minnesota Department of Labor and Industry.

The MINNESOTA HUMAN RIGHTS ACT prohibits discrimination in employment and on the part of a labor organization on the basis of sex. The same law prohibits discrimination on the basis of age, with some exceptions. Exemptions to the age prohibition are provided for apprenticeship programs related to a trade "which predominantly involves heavy physical labor or work on high structures," and which apply the age restriction uniformly to all individuals.

## APPENDIX: APPRENTICES BY STATE, 1978

<u>STATE</u>	<u>TOTAL APPRENTICES</u>	<u>FEMALE APPRENTICES</u>	<u>PERCENT FEMALE</u>	<u>RANK</u>
Rhode Island	1,305	116	8.89%	1
Puerto Rico	1,361	110	8.08%	2
Virginia	7,192	510	7.09%	3
Alaska	1,575	98	6.22%	4
Montana	2,281	123	5.39%	5
Wisconsin	7,330	368	5.02%	6
Mississippi	1,878	89	4.74%	7
Virgin Islands	22	1	4.55%	8
New Hampshire	614	27	4.40%	9
Nebraska	1,984	85	4.28%	10
Nevada	1,619	67	4.14%	11
Washington	7,921	325	4.10%	12
Connecticut	5,614	208	3.71%	13
Georgia	3,484	129	3.70%	14
Louisiana	9,500	347	3.65%	15
Colorado	2,644	96	3.63%	16
Oklahoma	2,397	72	3.00%	17
Maine	1,746	52	2.98%	18
California	36,592	1,050	2.87%	19
Texas	13,782	391	2.84%	20
Michigan	15,780	413	2.62%	21
Vermont	1,133	28	2.47%	22
Dist of Columbia	2,308	54	2.34%	23
Oregon	4,501	98	2.18%	24
New Mexico	1,721	37	2.15%	25
Indiana	6,205	133	2.14%	26
Tennessee	6,079	129	2.12%	27
Massachusetts	4,097	86	2.10%	28
Utah	3,720	78	2.10%	28
Kansas	1,289	26	2.02%	30
South Carolina	1,996	40	2.00%	31
Arizona	2,642	51	1.93%	32
New York	11,063	208	1.88%	33
Iowa	2,878	53	1.84%	34
Maryland	3,899	67	1.72%	35
South Dakota	618	10	1.62%	36
Kentucky	2,823	45	1.59%	37
Wyoming	760	12	1.58%	38
Florida	5,096	79	1.55%	39
Idaho	1,541	23	1.49%	40
Ohio	13,322	194	1.46%	41
North Carolina	3,366	47	1.40%	42
Illinois	13,202	166	1.26%	43
New Jersey	8,537	99	1.16%	44
Missouri	5,393	57	1.06%	45
Arkansas	1,364	13	0.95%	46
Pennsylvania	9,761	91	0.93%	47
Minnesota	5,974	53	0.89%	48
West Virginia	1,466	13	0.89%	48
Alabama	3,918	34	0.87%	50
North Dakota	1,064	9	0.85%	51
Hawaii	2,880	24	0.83%	52
Delaware	963	4	0.42%	53
Guam	148	0	0.00%	54

Source: U.S. Department of Labor, State and National Apprenticeship System

## APPENDIX: FEMALE APPRENTICES BY INDUSTRY GROUP, U.S. 1978

<u>INDUSTRY GROUP</u>	<u>TOTAL APPRENTICES</u>	<u>% OF ALL APPRENTICES</u>	<u>TOTAL FEMALE APPRENTICES</u>	<u>% OF ALL FEMALE APPRENTICES</u>
Construction	146,183	55.7%	1,619	24.0%
Manufacturing	62,972	24.0%	2,268	33.7%
Transportation, Com- munication, Electrical, Gas and Sanitation	11,885	4.5%	273	4.1%
Retail Trade	7,339	2.8%	493	7.3%
Services	16,803	6.4%	1,349	20.0%
Public Administration	14,816	5.6%	653	9.7%
Other	2,350	0.9%	83	1.2%
TOTAL	262,348	100.0%	6,738	100.0%

Source: U.S. Department of Labor, State and National Apprenticeship System

## APPENDIX: MINNESOTA APPRENTICES BY TRADE, 12/31/78

<u>APPRENTICESHIP PROGRAM</u>	<u>TOTAL FEMALE APPRENTICES</u>
Bookbinder, Class A	4
Cabinetmaker	2
Carpenter	9
Dental Technician	1
Display, General	1
Drywall Finisher	1
Drywall Taper	2
Electrical Wirer	4
Electrician	1
Envelope Machine Adjuster	1
Estimator & Appraiser	1
Floor Coverer	1
Gathering Machine Operator	2
Mapper	3
Material Control Specialist	2
Mouldmaker	1
Offset Cameraman	1
Offset Platemaker	3
Painter & Decorator	4
Pipefitter	1
Plant Attendant	9
Plumber	1
Roofer	1
Rubber Goods Tester	1
Servicer, Gas	1
Servicer, Telephone	1
Spiral Binding Machine Operator	1
Trouble Technician	1
Typesetter	2
Upholsterer	1
Watchmaker	7
TOTAL (31 of 152 trades)	71

Source: Minnesota Department of Labor & Industry

The survey was sent by mail to all 91 women and a random sample of 165 men, registered apprentices whose addresses were on file at the Minnesota Department of Labor and Industry. Of these, 57 women (63%) and 85 men (52%) responded.

Totals are not always the same as the number of total respondents because some respondents did not answer all questions and some questions allowed multiple answers from each respondent. Percentages given here are based on the number of persons responding to each item.

	WOMEN		MEN	
	Number	Percent	Number	Percent
ARE YOU AN:				
Apprentice	51	89.4%	65	76.5%
Journeyman	3	5.3%	14	16.5%
Other	3	5.3%	6	7.1%
HOW DID YOU GET INTERESTED IN THIS TRADE?				
Knew someone in the trade	20	35.1%	31	36.5%
Contact through school/counselor	4	7.0%	7	8.2%
Personal interest	15	26.3%	30	35.3%
State employment service	1	1.8%	3	3.5%
L.E.A.P.	4	7.0%	2	2.4%
Other (specify):				
Previous employment	9	15.8%	10	11.8%
Not specified	4	7.0%	2	2.4%
WHERE DID YOU HEAR ABOUT THIS PARTICULAR APPRENTICESHIP?				
Friend or relative	16	28.1%	30	35.3%
School or job counselor	5	8.8%	11	12.9%
Job posting	10	17.5%	25	29.4%
Notice in newsletter or newspaper	1	1.8%	1	1.2%
Apprenticeship Information Center	1	1.8%	2	2.4%
Other (specify):				
Union	7	12.3%	2	2.4%
Employer	6	10.5%	5	5.9%
L.E.A.P.	3	5.3%	1	1.2%
State employment service	2	3.5%	0	0.0%
Veterans Administration	1	1.8%	3	3.5%
Not specified	5	8.8%	5	5.9%
HAVE YOU HAD PREVIOUS EXPERIENCE WHICH RELATES TO YOUR TRADE?				
Yes	21	36.8%	41	50.6%
No	36	63.2%	40	49.4%

	WOMEN		MEN	
	Number	Percent	Number	Percent
HOW MUCH EDUCATION HAVE YOU HAD?				
High school only	11	19.3%	24	28.2%
Vocational school - 1 year	8	14.0%	16	18.8%
Vocational school - 2 years	12	21.1%	25	29.4%
Vocational school - 3 years	1	1.8%	2	2.4%
Vocational school - 4 years	0	0.0%	2	2.4%
College - 1 year	10	17.5%	8	9.4%
College - 2 years	7	12.3%	11	12.9%
College - 3 years	3	5.3%	2	2.4%
College - 4 or more years	13	22.8%	3	3.5%
Other	3	5.3%	8	9.4%

IF YOU'VE HAD VOCATIONAL TRAINING, WHERE DID YOU HAVE IT?

In high school	1	3.2%	2	3.7%
In a vo-tech while in high school	1	3.2%	3	5.6%
In a vo-tech after high school	24	77.4%	46	85.2%
Other (specify):				
In a private trade school	1	3.2%	4	7.4%
In military service	0	0.0%	2	3.7%
Not specified	5	16.1%	1	1.9%

IF YOU ATTENDED A VOCATIONAL SCHOOL, DID YOU GO RIGHT AFTER FINISHING HIGH SCHOOL?

Yes	5	16.7%	17	30.9%
No	25	83.3%	38	69.1%

Note: Women were asked how many years they spent between high school and vocational school. Twenty-one responded:

Range (yrs between h.s. & voc. school)	1-18 yrs	--	--
Average number of years between	7.3 yrs	--	--

WHAT VOCATIONAL COURSES HAVE YOU HAD?

(Listed at least one) in high school	4	11.1%	23	33.8%
(Listed at least one) in vocational school	30	83.3%	55	80.9%
(Listed at least one) Other	4	11.1%	10	14.7%

OF THE VOCATIONAL COURSES YOU HAVE HAD, WHICH ONES ARE RELATED TO YOUR TRADE?

Listed at least one	14	51.9%	31	59.6%
"All"	9	33.3%	17	32.7%
"None"	4	14.8%	4	7.7%

	<u>WOMEN</u>		<u>MEN</u>	
	<u>Number</u>	<u>Percent</u>	<u>Number</u>	<u>Percent</u>
WHEN YOU WERE TRYING TO ENTER YOUR TRADE, DID YOU FIND ANY HELPFUL RESOURCES?				
Yes	22	44.9%	30	37.0%
No	27	55.1%	51	63.0%
WHEN YOU WERE TRYING TO ENTER YOUR TRADE, WERE THERE ANY BARRIERS?				
Yes	23	44.2%	21	26.3%
No	29	55.8%	59	73.8%
DO YOU FEEL THERE IS A NEED FOR A RESOURCE FOR WOMEN WHO ARE CONSIDERING ENTERING A TRADE?				
Yes	48	92.3%	--	--
No	4	7.7%	--	--
DO YOU THINK EACH TRADE SHOULD HAVE ITS OWN CONTACT ?				
Yes	19	39.6%	--	--
OR DO YOU THINK A GENERAL RESOURCE WHICH COVERS ALL TRADES WOULD BE MORE HELPFUL?				
Yes	37	77.1%	--	--
DO YOU THINK A BOOKLET, WRITTEN BY WOMEN FOR WOMEN, WOULD HAVE BEEN A HELP TO YOU?*				
Yes	29	60.4%	--	--
WOULD IT HAVE BEEN HELPFUL TO YOU TO TALK TO A WOMAN WHO IS ALREADY IN THE TRADES?				
Yes	31	64.6%	--	--
WOULD IT HAVE BEEN EASIER FOR YOU TO KNOW ANOTHER WOMAN IN YOUR TRADE :				
AT THE TIME YOU WERE CONSIDERING THE TRADE?				
Yes	30	76.9%	--	--
No	9	23.1%	--	--
AFTER YOU WERE IN THE TRADE?				
Yes	29	76.3%	--	--
No	9	23.7%	--	--

\* Note: The full text of this question is: "Do you think a booklet, written by women for women, summarizing job descriptions, salaries, occupational outlook about all the various trades, would have been a help to you?"

	WOMEN		MEN	
	Number	Percent	Number	Percent
ARE YOU AWARE THAT PRIVATE COMPANIES SOMETIMES SPONSOR APPRENTICESHIP PROGRAMS?				
Yes	29	53.7%	--	--
No	25	46.3%	--	--
ARE YOU SATISFIED WITH YOUR JOB?				
Yes	39	84.8%	68	84.0%
No	7	15.2%	13	16.0%
ARE YOU IN A UNION?				
Yes	43	79.6%	73	89.0%
No	11	20.4%	9	11.0%
IF YES, HAVE YOU ATTENDED UNION MEETINGS?				
Yes	28	65.1%	54	77.1%
No	15	34.9%	16	22.9%
ARE YOU INTERESTED IN BEING AN OFFICER IN YOUR UNION OR IN INVOLVING YOURSELF IN UNION ORGANIZATION IN SOME OTHER WAY?				
Yes	25	59.5%	15	21.4%
No	17	40.5%	55	78.6%
DO YOU FEEL THAT YOUR UNION IS RECEPTIVE TO WOMEN MEMBERS?				
Yes	30	75.0%	48	69.6%
No	10	25.0%	21	30.4%
IS YOUR UNION RECEPTIVE TO WOMEN IN POWER POSITIONS?				
Yes	16	53.3%	31	50.0%
No	14	46.7%	31	50.0%
ARE YOU INTERESTED IN BEING IN A MANAGEMENT POSITION IN YOUR TRADE?				
Yes	32	61.5%	52	64.2%
No	20	38.5%	29	35.8%
WOULD IT BE HELPFUL TO YOU TO TALK TO WOMEN IN MANAGEMENT POSITIONS IN THE TRADES?				
Yes	31	59.6%	--	--
No	21	40.4%	--	--

	WOMEN		MEN	
	Number	Percent	Number	Percent
DO YOU FORESEE BEING SELF-EMPLOYED AS A CONTRACTOR IN YOUR TRADE?				
Yes	21	41.2%	32	41.6%
No	30	58.8%	45	58.4%
WOULD YOU BE INTERESTED IN FINDING OUT MORE ABOUT YOUR PERSONAL RIGHTS UNDER THE LAW? (CHECK WHICH ONES)				
Yes:				
Affirmative Action	24	57.1%	--	--
Personnel matters*	27	64.3%	--	--
Labor-management relations	26	61.9%	--	--
Maternity leave	18	42.9%	--	--
No	5	11.9%	--	--
WHAT IS YOUR AGE (AT LAST BIRTHDAY)?				
21 and under	4	7.0%	8	9.8%
22 - 25	19	33.3%	27	32.9%
26 - 29	16	28.1%	27	32.9%
30 and over	18	31.6%	20	24.4%
Age range	19-59 yrs	--	18-40 yrs	--
Median age	28 yrs	--	26,5 yrs	--
ARE YOU:				
Single (never married)	25	44.6%	25	30.5%
Married, spouse present	15	26.8%	50	61.0%
Married, spouse absent	0	0.0%	2	2.4%
Divorced	16	28.6%	5	6.1%
Widowed	0	0.0%	0	0.0%
DO YOU HAVE CHILDREN LIVING WITH YOU?				
Yes	24	42.1%	38	46.3%
No	33	57.9%	44	53.7%
IF MARRIED, IS YOUR WIFE NOW EMPLOYED?				
Yes	--	--	26	52.0%
No	--	--	24	48.0%

\* Note: The full text of this item is: "Personnel matters: absences, terminations, dismissal, etc."