



SASKATCHEWAN PLUMBING & PIPEFITTING INDUSTRY SECTOR

Needs Analysis and Human Resources Strategy FINAL REPORT

Prepared for:

Mechanical Contractors Association of Saskatchewan

and the

Saskatchewan Provincial Pipe Trades Association

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EXECUTIVE SUMMARY

1.0 Introduction

In early 1999, the Mechanical Contractors Association of Saskatchewan and the Saskatchewan Provincial Pipe Trades Association came together to discuss how they could jointly develop human resources strategies for the ongoing development of the plumbing and piping trades in Saskatchewan. A Sector Partnership was formed, consisting of representatives from industry associations, contractors and industry, training providers, Government, and employee and Aboriginal groups. Working on behalf of the Sector Partnership, and with Saskatchewan Post Secondary Education and Skills Training, Engele & Kook Associates Ltd. carried out research to identify the training and human resources needs of the sector.

The Saskatchewan plumbing and pipefitting workforce was documented in the 1996 Census at 1,765 workers. The majority of employment occurs within the Construction industry, at 72%. Manufacturing, mining, and Government and service industries employ the remainder.

According to the Saskatchewan Provincial Pipe Trades Association, the overall workforce should also take into account the approximately 300 workers imported by out of Province employers in the past year, to work on a variety of industrial projects.

Within the Saskatchewan construction and contracting industry segment, about 450 active contractors serve residential, commercial, industrial and institutional markets. The range of services offered includes plumbing and heating, gas, electrical, refrigeration, instrumentation, sheet metal and welding services. The total number of workers employed by the core of active contractor companies is estimated at 3,843. 87.5% of companies are small businesses employing from 1 to 9 workers.

2.0 Methodology

Research was conducted to identify the human resource and training needs of the Piping Sector. The research process involved several stages, consisting of:

- (a) A Literature review:

The Literature Review summarizes existing data relevant to the Needs Analysis and Human Resources Strategy from a variety of sources. The Committee looked at Annual Reports of Post-Secondary Education and Skills Training for the last five years for Apprenticeship data, Statistics Canada Census occupational data, age data and information on aboriginal workforce participation.

(b) Consultation with Saskatchewan business owners and employers by means of a telephone survey:

During the month of January 2000, 100 telephone surveys were directed toward Saskatchewan contractors and Employers by Calibre Strategic Services Inc. Company contact sources were provided by the Mechanical Contractors Association and the Saskatchewan Provincial Pipe Trades Association. Variables included company size and location.

(c) Consultation with Saskatchewan Apprentices and Journeymen through a telephone survey:

100 telephone surveys were also directed toward Apprentices and Journeymen. This survey was conducted by Engele & Kook Associates Ltd. Company contacts provided the names of staff willing to participate in the survey. Upon completion it was found that the total sample contributed 1,465 years of work experience in response to the survey questions.

(d) Interviews with industrial and utility sector employers and employees:

Personal interviews were conducted to identify characteristics of this sector's needs.

(e) Review of Aboriginal services and initiatives:

The Needs Analysis describes the services of several Aboriginal Education and Training Institutions and profiles an operating company formed by Aboriginal partners and a mechanical contracting firm.

(f) Results of the surveys along with all other information gathered, were discussed in detail by the Sector Committee in a series of meetings. The discussions and participation enabled the generation of a number of recommendations and strategies for further development.

(g) Further validation of the Study's methodology and findings were held via a presentation and discussion of the results and recommendations with the Board of the Mechanical Contractors Association, in June 2000. The Board contributed comments and input and subsequently accepted all recommendations.

3.0 Key Findings

Key findings from both the Literature Review and the Needs Analysis are condensed for review in this Executive Summary.

3.1 Literature Review

The Literature Review consists of statistical reviews of occupational, age, and apprenticeship information and of a profile of participation in the workforce by the Aboriginal population.

The highlights of the Literature Review are summarized as follows:

3.11 Apprenticeship Statistics

An average of 21 plumbers have become journeymen every year from 1995 to 1999. The number of indentures for plumbers are up during that period from 44 to 101 indentures, an increase of 29.5% in the five years ended June 1999.

During these same years, cancellation rates have dropped from 15% to 5% and then increased to 10% during 1998-99 due to adjustments made by the Apprenticeship Commission to remove inactive participants from the system. Completion rates have also been increasing from 20 persons per year, by 35% and 19% respectively in the 1996-97 and 1997-98 years.

In the 1998-99 year, journeyman status was granted to 30 persons. There were 325 plumbers registered at all levels of training at the end of that year, an increase of 73% over the last five years.

An average of 12 steamfitter-pipefitters have become journeymen each year from 1995 to 1999. (23 in 1999) The trade has had an average of 45 registrants in the system each year over the past five years, however in the last year inactive registrants were cancelled, leaving the net number of apprentices at the end of 1999, after completions, at 35. Indentures have fluctuated from a low of four to a high of 22 per year over the past five years.

Together with the plumbing trade, there has been a 50% increase in the number of apprentices over five years, compared to 56 % for all trades within the Province.

3.12 Aboriginal Profile in Saskatchewan

Saskatchewan has the third largest Aboriginal population in Canada. Based on 1996 Statistics Canada Census data, 11.4% of the population is of aboriginal ancestry, second to Manitoba at 11.69% and the Yukon at 20%. Nationally, the total aboriginal population is 2.8% of Canada's population.

Between 1995 and 2001, the Aboriginal workforce in Canada is projected to increase by 4.5 times the growth rate of the non-Aboriginal workforce over the same period. (15.7% and 3.45% respectively).

The Aboriginal population is much younger than the non-Aboriginal population. The Aboriginal birth rate is more than double that of non-Aboriginal people.

The unemployment rate of Saskatchewan Non-Aboriginals is 5.9%, Aboriginals 26%.

It is clear that there is untapped labour potential within the aboriginal community. The aboriginal labour force is more youthful than Saskatchewan's labour force, and is growing more rapidly than the non-aboriginal labour force. The demographics provide a further indication of the potential positive economic impact of jointly working together to solve serious challenges.

Strategies that address movement toward working together are crucial to meeting the future needs of business and employers in all sectors.

3.13 Age Distribution of Labour Force

The Piping Worker census in 1996 showed 11.9% of workers to be between 15 and 24 years of age, as compared to 18.9% in the youth age group for the Saskatchewan Labour force as a whole. The age distribution also shows a greater percentage of Piping workers between the ages 25 – 44, than in the provincial Labour Force as a whole (58% to 38%), indicating that Piping workers are typically older than the workforce in general, and confirming the need to prioritize recruitment and retention strategies aimed at new workers. There is a lesser proportion of Piping workers at ages 45 and over, than in the Provincial labour force profile (30% versus 43%).

3.2 Needs Analysis

The following information summarizes the key results from the telephone surveys of Piping Sector Employers and Employees. Just over half the company respondents worked in New Construction and a further one-third categorized their primary business as in Service and Repair. 50% of those surveyed served residential markets and 35% served commercial markets.

Employment Trends

In January, 2000, one hundred companies and one hundred employees were asked about their human resources and training needs. To establish a base of employment levels and trends for the industry, companies were asked about their current level of employment and the level of employment predicted in three years for journeyman and apprentice plumbers and pipefitters, and general labour occupations. Overall, the expectation

provided by business owners is for employment levels to increase in all of these occupations by an average of 44%. The employment increase for journeyman plumbers is 132 positions, or 36.5%. The increase for apprentice plumbers is 80 positions or 31%.

Employment levels for pipefitters are expected to increase by 121 positions, or by 64% for journeymen and 87 positions or 96.7% for apprentices.

The Sector Committee suggests caution with regard to the use of these figures, as they appear to be highly optimistic. It is difficult to ascertain whether the growth anticipated relates to new jobs or replacement positions. The discussions of the group considered that the economic development activity on the horizon in the province does not warrant this level of growth. More study is needed to acquire accurate projections.

Recruitment and Retention Issues

When companies were asked how difficult it is to recruit suitable employees, the mean rating was 3.9 on a 5 point scale, indicating there are significant difficulties in recruiting. The primary reason for the difficulty is due to shortages of skilled and qualified people, rated at 4.4 on a 5 point scale.

Over half of organizations surveyed indicated that more than one person left their organization in the last year. Surprisingly this was not necessarily seen as a problem, since it was mostly employer initiated. Employees were generally either laid off due to shortages of work, or alternatively employees were let go because they were unsuitable or not a good match with the work they were doing. These findings do suggest that improvements in entry and selection methodologies might contribute to reductions in turnover due to the hiring of employees that are not well matched to job demands.

Performance reviews prior to indenturing are in use by 60% of companies, and 72% of employees indicated that they had been required to complete a probationary period. However, apprentices surveyed were much more likely to say they had not completed a probationary period than were the journeymen. (40% and 16 % respectively.) The Sector Committee members felt that probationary periods in use may be somewhat informal and were not consistent throughout the industry.

Wage Rates

The mean wage for journeyman plumbers employed within the companies interviewed was \$19.63 per hour. The starting wage for first year apprentices was \$9.29 and increments met the Apprenticeship branch guidelines of 47% of journeyman wages for the first year, 57% for second year, 67% for third year and 82% for fourth year.

Journeymen pipefitters were paid \$21.20 per hour and started at \$9.29 hourly as first year apprentices.

Saskatchewan Training Environment

When asked about the Saskatchewan apprenticeship and training system, Companies indicated a slightly higher than medium level of satisfaction - 3.3 rating out of 5. Employees rated the system at 3.4 out of 5. Suggestions for improvements were requested in the interviews of both employers and employees, and the need to update training systems was ranked the highest.

The training content itself is perceived to be out of date, and delivery in many cases is hampered by the inability of instructors to maintain current levels of knowledge demanded by industry. Another critical message was the need for better recruitment methods and promotion of the trade.

Both employees and companies concurred that a review and update of the training content and system is in order. Several needs identified by this study are:

- to incorporate areas of technical specialization into the training system,
- keep up with changing technology
- improve funding systems
- implement more effective entry and recruiting practices and better human resources planning
- deliver training to diverse geographical locations
- address customer service and public relations
- address the emerging needs of the service industry

A number of employers and employees (14.4%) suggested that additional hands on training time, or longer practicums would be useful. While discussions at the Committee level indicated that the Training Provider is responsible primarily for theoretical training and the work site is responsible primarily for the practical training, this point raises the issue of improved communication amongst all participants about their roles in the Apprenticeship system.

Companies and journeyman alike have confirmed that it is typically useful, but often essential to maintain an educational system that enables the development of more than one skill set. There are common elements amongst many trades and indications from this strong response is that there is a very strong need to develop a post-graduate culture amongst journeymen.

Employees were asked to outline the changes they see happening in their occupation in the near future and what the impact of those changes might be. 43% of respondents indicated that more new technology and computerization is expected, which along with other factors such as the use of new material and products, will lead to the need to acquire more training.

Companies were asked whether or not they had a human resource plan in place, and the larger the business, the more likely that there was a plan in place. However, over three quarters of the interviewees did not have a human resources plan. The significance of this

finding is that there is considerable potential to assist employers to be aware of the benefits of human resource planning and how it can contribute to the effectiveness of business performance.

The report also found limited use of any type of partnership arrangements that might impact on employees or other resources, again revealing the potential for leveraging existing resources in the system and creatively seeking solutions to common issues.

Equity Participation

Companies were asked to indicate levels of equity employment, and it was found that within the plumbing occupation, 75% of companies had no aboriginal workers, 91.5% had no female plumbers and 94% had no plumbers with disabilities.

Of those companies surveyed that employed pipefitters, 80.6% had no aboriginal pipefitters, 91.7% had no female pipefitters, and 94.4% had no pipefitters with disabilities.

The main barriers to greater equity participation in the opinions of the Company respondents, were listed as apparent lack of interest in the industry (39.6%), lack of technical skills(25.7%), lack of employability and work readiness skills(19.8%), and lack of knowledge of the industry (14.9%).

About Piping Trade Employees

About two thirds of employees interviewed for the study came into the trade from a working background and 27% came direct from high school. Most have Grade 11 or Grade 12 background and 35% of individuals are attracted to the trades because they know someone working in the field and have some degree of familiarity with it. Also significant in the findings was that many moved into the trade because jobs were available and stayed because of the challenges the trades had to offer. Those who entered the trade came from a wide variety of backgrounds but about 40% either had previous plumbing experience, were employed in construction or roofing, or had farming backgrounds.

Because so many had been in the workforce upon entry to the trade, it is not surprising that employers were the overwhelming source of information about the trade. When employees were ready to enter the trade they again relied heavily on their employer (81%), with some utilizing the Apprenticeship branch and only 1% utilizing high school assistance.

Apprentices surveyed are more likely to have Grade 12, (83% compared to 56%) and enter into the trade directly from high school than were the journeymen interviewed. They are more likely to rely on their friends, family and high school guidance counsellor for information than were the journeymen. Moreover, when entering the trade, the use of

SIAST, the Apprenticeship Branch and the High School system are all significantly higher than they were for the journeyman group.

Respondents indicated a strong appreciation of the variety of work, the challenges and the learning opportunities that careers in the plumbing and piping trades have to offer. A variety of positive characteristics emerged, including the ability to meet and interact with a range of interesting people, and that it offers secure employment.

On the down side, dislikes were fielded about the nature of the work such as long hours and being on call, but one third of respondents had nothing negative to say about their work.

Skills

63% of Employees indicated that their employer offered upgrading and training, however only 25% have actually taken any training. Most employees are confident in the present sufficiency of their skills, but would like to expand their skills for future career development. Of most interest was computer skills, pipefitting and electrical. Any recent training taken tended to be provided by manufacturers on their product lines, or in the safety area.

About one quarter of respondents use Internet and email and half of those tend to use the computer either daily or weekly. Most (69%) would like to acquire additional computer skills at a basic or introductory skill level.

When asked which part of the year would be the most appropriate for training, almost 70% felt that from January to May were the best months.

Interviews with Industrial and Utility Sector Employers and Employees

Several personal interviews were held with representatives of the industry who employ piping sector human resources but do not participate directly in the Apprenticeship system. Typically these large employers pay higher wage rates, are governed by union agreements for seniority, and do not experience some of the shortages that the service and contracting sector may be facing due to the aforementioned recruiting advantages. Firms interviewed have an interest in technology-based training as a means to deliver consistent training to large numbers of employees who may be dispersed geographically. Indications are that there is significant potential to share resources and develop partnership agreements that will benefit the industry as a whole.

4.0 Plumbing & Pipefitting Industry Sector Partnership Recommendations

A number of recommendations were generated by the Industry Sector based on the research and interviews that were conducted. A summary of the recommendations and strategies follows:

Sector Partnership

- Continuation of the Sector Partnership
 - Develop a detailed framework agreement for long term development
 - Communicate industry needs to employers and other parties

Apprenticeship Training

- Improve communication of roles and responsibilities within the Apprenticeship System
 - Develop an Apprenticeship Guidelines booklet outlining key information and the roles and responsibilities of Employers, Journeymen, Apprentices, the Apprenticeship Commission and SIAST
 - Support ongoing Curriculum Review
 - Explore alternate methods of training delivery

Partnerships

- Establish Aboriginal partnerships and recruitment strategy
 - Contact aboriginal organizations
 - Explore successful aboriginal partnerships
 - Promote the industry to youth
 - Communicate the availability of human resources and business potential of Aboriginal communities.

Entry Strategies

- Examine the feasibility of job-site development programs
- Develop a high school Communication and Recruitment Strategy
 - Develop a promotional strategy to young people, parents, and educators
 - Utilize the Apprenticeship Guidelines booklet
 - Develop a resource guideline for those speaking or appearing on behalf of the industry
- Consider expanding Apprenticeship and Trades curriculum to all Saskatchewan schools
 - Contact Saskatchewan Education to identify curriculum opportunities for education about trades.

Human Resource Development Issues

- Promote the advantages of human resource development and planning
 - Examine the indenturing process, including probationary period and performance assessment tools
 - Develop an industry based human resources manual

- Industry Partnerships
 - Encourage industry partnerships and sharing of resources

Post Journeyman Training

- Establish a Post Journeyman Training system
 - Promote the need to establish post journeyman training
 - Initiate discussion about skills areas requiring certification
 - Explore availability of funding to sustain a life long training culture
- Implement Train the Trainer programs
- Address service industry skills shortages
 - Request that the Apprenticeship Commission examine the need for Mechanical Equipment Services Technician sub-trade designation.

4.1 Next Steps

Within the next six months to a year, the Sector Committee will be working on the following priorities:

- Plan and implement the continuation of the Sector partnership.
- Produce the Apprenticeship Guidelines booklet.
- Establish the feasibility of job site training programs and implement results.
- Respond to the training needs regarding development of programs for:
 - Train the Trainer
 - Service industry needs
 - Customer service

4.2 Communication Plan

The Partnership wishes to ensure that communication of the results of Needs Assessment and Human Resources Strategy are made as widely available as possible. Reports are to be distributed directly to all Sector Committee representatives and throughout their organizations. Results will also be communicated with National Pipe Trades Human Resources Steering committee and National levels of the sponsoring organizations. Engele & Kook Associates will continue to be available to present the results of the study. The results of the Human Resources and Needs Analysis will also be published and available to industry and the general public at the Internet web site of the Mechanical Contractors Association of Saskatchewan by fall 2000, at <http://www.mca-sask.com>