

**Labour Market Update of the National Human
Resources Study of the Advanced Wood
Processing Industry**

2010 INTERIM REPORT

The opinions and interpretations in this publication are those of the author
and do not necessarily reflect those of the Government of Canada.

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PREFACE

This interim report has been prepared on behalf of the Wood Manufacturing Council (WMC). The WMC was established in 2001 as the national sector council for the advanced wood products manufacturing sector. The WMC's mandate is to plan, develop and implement human resource strategies that support the long-term growth and competitiveness of Canada's advanced wood products sector and to meet the developmental needs of its workforce.

R.A. Malatest & Associates Ltd. would like to acknowledge the support provided by members of the Steering Committee in guiding the development of this research project. Special thanks to Richard Lipman, President, Wood Manufacturing Council and Blair Tullis, Project Manager, for keeping us on track throughout the study. Also, the research would not have been possible without the participation of wood product manufacturers from across the country, who kindly provided us the opportunity to explore the human resource conditions of the advanced wood products manufacturing sector.

An important aspect of this interim report is that the survey results do not include input from Quebec employers. At the time of this study, a similar research project was being conducted in Quebec under the sponsorship of the Quebec Sector Council - QSC (Comité sectoriel de main-d'oeuvre des industries des portes et fenêtres, du meuble et des armoires de cuisine). To avoid possible duplication and overlap, the Steering Committee decided to exclude Quebec manufacturers from the survey research. In response, the QSC agreed to share the results of their research with the WMC, which will be incorporated into a subsequent final report once the Quebec data is received.

EXECUTIVE SUMMARY

Highlighted below are the key findings associated with the research completed on Canada's Advanced Wood Products (AWP) manufacturing sector, sponsored by the Wood Manufacturing Council. The information presented in this report is based on extensive research including a comprehensive scan of available literature, data from Statistics Canada (employment data, manufacturers' survey data), development of an inventory of relevant post-secondary education and training programs, interviews with key stakeholders in the sector and a survey of more than 200 employers across Canada.

The Advanced Wood Products (AWP) manufacturing sector is characterized by a large number of small establishments

Analysis of the data suggests that the AWP manufacturing sector is characterized by a large number of small (59%) to medium-sized (37%) establishments that employ fewer than 100 workers. Furniture manufacturers represent the largest segment (46%) of AWP manufacturers, followed by manufacturers of cabinets and countertops (21%). The predominance of small firms has implications for human resource planning, as less than one-quarter of employers (22%) reported having a human resource plan or strategy in place in their organization.

Economic growth in the sector has been flat since the mid-2000s

While the AWP sector experienced rapid economic growth through the early 2000s, sector revenues have since remained flat, around \$17 billion between 2005 and 2008. As the sector is highly dependent on the construction of residential and non-residential structures, it is expected that revenues have declined further still over the last two years, in line with declining values in building permits. From 2008 through 2009, the value of all building permits issued in Canada declined 13.3%.

The AWP sector contains a significant export component with the majority of exports destined to the United States. Revenues from exports reached \$7.9 billion in 2005, falling to \$3.5 billion in 2009. The deterioration in the US and world economies and a rising Canadian dollar continue to have a marked impact on the AWP sector. Until a recovery takes hold in the US market, Canadian exports of manufactured wood products are likely to remain low.

Renovation spending continues to help sustain manufacturing activity across Canada

Spending on home renovations reached \$40.9 billion in 2009, up more than one-third since 2005. The increase in renovation spending in 2009 was, in part, facilitated by the federal government's Home Renovation Tax Credit, phased out in January 2010. Spending on home renovations is projected to stabilize at around \$40 billion annually through 2013, or roughly the same amount projected for construction expenditures on new dwellings.

Furniture manufacturers lag other manufacturers in the sector

Among the five manufacturing sub-sectors comprising the AWP sector, furniture manufacturers experienced the lowest levels of growth between 1998 and 2008. Annual growth in revenue averaged just over 3% annually for furniture manufacturers, compared to more than 6% for the broader sector, while almost three-quarters (74%) of all jobs lost since 2003 were associated with the furniture sub-sector.

Improvements in worker productivity are transforming the AWP manufacturing sector

In response to increased globalization and other competitive forces, AWP manufacturers have invested heavily in new equipment and technology to improve manufacturing performance. According to the Annual Survey of Manufacturers & Loggers, output per production worker between 1998 and 2008 increased on average 4.2% per year, compared to 1.7% for all other Canadian manufacturers. With this transformation, AWP employers are becoming more dependent on workers with higher skill levels to effectively function in the workplace. An important part of the challenge today is recruiting and developing new workers with the skills and knowledge to meet changing technology requirements.

Key informants identified several critical human resource issues for the sector

For much of the past decade most employers experienced shortages of skilled, semi-skilled and professional technical workers, as well as unskilled workers during periods of robust activity. With the industry becoming more technology-intensive, the need for professional and technical workers has become a growing challenge, particularly for smaller operators. The sector's focus on developing more innovative products and processes is further driving the need for workers with more specialized skill sets and knowledge. In the longer term, as the workforce continues to age and competition for more highly qualified workers increases, employers expect skill shortages to persist across most skilled and technical occupations.

Attracting workers for entry-level positions has typically not been a challenge for employers, as most are drawn from the secondary school system and the general labour force. The majority of these workers are unskilled with little or no direct work experience, and require extensive on-the-job training. Worker turnover is often high among this group, as workers are motivated by higher wages in competing industries, such as construction and manufacturing (particularly the auto sector in Ontario). This employment model makes it difficult to develop a stable production workforce, capable of pursuing long-term career goals within the company or sector.

Availability of “relevant” training programs was identified as a primary gap or deficiency within the education and training system. With occupational requirements becoming more complex, employers felt that new recruits (e.g., secondary students) were not adequately prepared to meet entry-level standards, and that many graduates of post-secondary programming did not possess the practical skills needed in highly technical occupations. Adding to this problem is the low relative use of industry training and upgrading programs among smaller manufacturers – many of whom are simply unaware of program availability. The sector continues to go through a transformation and increased engagement among all manufacturers in the post secondary system is considered essential to ensuring industry competitiveness.

The economic downturn has had a profound effect on employment

For those who participated in the survey, the overall impact on employment has been severe, as total reported employment fell 20% since 2007. When applied across the sector, an overall decline of this magnitude would see total employment fall from 117,289 in 2007 to an estimated 94,183 workers in 2010. The loss of employment was felt most strongly among furniture manufacturers, where reported employment fell by 28%. Among core occupations, cabinet makers, assemblers and finishers accounted for about 70% of all job losses.

Male workers dominate core positions within the sector

Male workers dominate core positions within the AWP manufacturing sector, with 85% of all jobs occupied by men. Female workers have been more successful finding employment in the category of industrial designers, drafting technologists & technicians (32%), as well as in the semi-skilled occupation of finisher (37%). More than half (56%) of all core workers are over the age of 40, including roughly two-thirds of operations managers (68%) and maintenance mechanics (66%).

Job vacancies remain high in core occupations

In spite of recent economic events, job vacancies currently exist across all core occupations. The current reported vacancy rate for core occupations was 13%, a particularly high rate given the current economic climate. This would suggest an acute shortage of workers in most core occupations. More likely, this result may signal the beginning of a return to more normal employment conditions and an expectation of re-hiring laid off workers. In the longer term, manufacturers expect core employment to increase by 18% by 2014, or about 3% above 2007 employment levels.

Employers indicate that labour sources are adequately meeting their needs at this time

At the time of the survey, the majority of employers (72%) agreed that current sources of labour were adequately meeting their human resource requirements, with most hires drawn from other industries and other companies within the AWP sector. Given current economic conditions labour shortages are not considered problematic in lower skilled production jobs, yet skill shortages persist in the more highly skilled and technical occupations. Among those who indicated that their skill needs were not being met, most emphasized that post-secondary graduates lacked the required practical skills needed in the workplace.

While post-secondary education and apprenticeship training may be widely available to the sector, as a source of labour it accounts for less than 30 percent of overall hires. Given workforce demographics and increasing complexities in the workplace, manufacturers will be challenged to meet future requirements without more active engagement in the post-secondary system. This may require new approaches to training within the sector, where smaller operators have more opportunity to train and upgrade workers, similar to larger employers. The onus of training on small individual employers is a risk to the future development of skilled workers in the sector.

Employers have little linkage with the education and training system

While there is a general recognition that post-secondary programming is taking on added significance within the sector, current levels of communication between employers and the institutions remains weak, particularly among small and medium-sized manufacturers. With the possible exception of millwork manufacturers, most employers are not directly involved in supporting post-secondary programming, and therefore a small percentage of manufacturers have the perception that program graduates possess the skills needed by the sector. Part of the challenge is the sector's traditional reliance on in-house training and a lack of awareness of post-secondary education and training programs available to AWP manufacturers. Addressing this knowledge/information gap is fundamental to raising

occupational standards and ensuring the benefits of training and education and broadly shared throughout the sector.

Employers express moderate levels of support for proposed workforce strategies

Among the strategies presented, employers expressed the most support for additional co-operative education and internship opportunities (53%), followed by the establishment of an Industry Advisory Committee (49%) to advise post-secondary institutions on training needs. Lower levels of support were attributed to the development of industry-led cost-shared training/upgrading programs (39%) and the concept of a training brokerage (37%). There were minimal levels of resistance to any strategies and a high percentage of “Don’t Know” responses. This would imply that any strategy under consideration would require sufficient communication with stakeholders to gain industry’s support.

The following recommendations are put forward for consideration by the Steering Committee and include both long-term and short-term recommendations.

Long-Term:

1. Develop a Sector Strategy that Lays the Foundation for Long-Term Industry Growth. In order to continue the sector’s transformation into a more dynamic, innovative and global leader in advanced wood product manufacturing, it is recommended that industry leaders put in place a sector strategy that outlines the economic, regulatory and organizational requirements needed to sustain the sector going forward. Similar to the European experience, this initiative would involve establishing formal partnerships throughout the “value chain” (i.e., forestry, wood, building design), to promote efficiencies in the utilization of industry resources and the marketing of advanced wood products domestically and internationally. The three sector councils responsible for wood manufacturing, forestry and perhaps construction could coordinate this initiative, with leadership from industry representatives.

Short Term:

2. Establish an Industry Advisory Committee Responsible for Education, Training Development and Communication. Under the direction of the Wood Manufacturing Council, establish an Industry Advisory Committee (IAC) with representation from among all five advanced wood product manufacturing sub-sectors and representatives of Canada’s post-secondary education and training institutions that provide programming in support of the AWP manufacturing sector. The IAC would be responsible for sharing information with respect to best practices in AWP training and education programming, strategic program planning, including occupational

development, standards and certification, and the promotion of education and training in support of wood product manufacturers across Canada. Central to this mandate would be the need to address information/knowledge gaps that currently exist primarily among small and medium-sized enterprises with respect to education, training and upgrading opportunities. The IAC would work closely with local trainers and educators to raise awareness of the opportunities available to manufacturers, as well as establish more effective outreach services with employers on a permanent basis.

3. Expand Recruitment Efforts to Attract Younger and Qualified Workers. Under the direction of the Wood Manufacturing Council, expand efforts to help ensure an adequate supply of younger workers capable of developing within the business. This would involve raising awareness of the sector as a viable career option at both the secondary and post-secondary levels. Introduce more effective screening techniques that focus on aptitude and ability to develop new skills. Expand the use of secondary programs, such as WoodLINKS, as both a practical (i.e., experiential) and informative pre-employment program for new recruits. Demonstrate to new applicants the potential for career development (“paths”) and training opportunities for those who are motivated to progress in the sector. Eliminate any perception that entry-level work in this sector is temporary or simply a stepping-stone to employment with other companies or industries. When hiring new workers, provide cross training in a range of positions to provide workers with a broader understanding of the operation.
4. Improve Retention of Qualified Workers. Employers recognize the value of retaining qualified staff even during periods of slow economic activity. To help ensure long-term commitment, provide qualified workers with opportunities to build technical and managerial skill through training and upgrading. Continue efforts to “promote from within” to minimize turnover and to help replace aging workers (i.e., succession planning). Co-ordinate with the Industry Advisory Committee (per Recommendation 2.) or similar body to pursue the most cost-effective training and development options that meet current and future requirements.
5. Promote Training Certification with Suppliers of New Technology. The full productive capacity of new equipment and technology can be undermined if workers do not receive adequate training and support to operate the equipment. Equipment used by manufacturers is now more technology-intensive (e.g., computer numeric controlled) and requires a more complex level of skill and knowledge to operate. Many employers are also becoming more reliant on workers capable of designing wood products using advanced software programs. To help promote training and career development, establish certification programs in partnership with suppliers of new equipment and technology that formally recognize completion of industry

training and upgrading programs. This certification can be “portable” and would allow employers to recognize previous skills/experience gained through such training.

1 INTRODUCTION

Canada's Advanced Wood Products (AWP) manufacturing sector encompasses a broad range of companies that manufacture interior and exterior wood building products, including windows and doors, cabinets and countertops, millwork, furniture, and factory-built housing and components. Products are manufactured in a factory setting then shipped to market for sale or to a building site for installation. The sector includes a large number of small and medium-sized companies, a production workforce characterized by lower levels of training and education, and a management approach focused on production processing as opposed to business innovation and strategy.

Traditionally, AWP manufacturers in Canada could rely on plentiful wood resources, favourable exchange rates and relatively low wages for business success. As a result of the often repetitive tasks involved in the sector's manufacturing processes, employers largely relied on less-educated production workers, and offered lower pay compared to other manufacturing sectors. Management was usually promoted vertically, and there was considered to be a limited sophistication in business management practices, especially in the areas of marketing and human resource development. These limitations have recently become more apparent as the sector has had to compete with lower cost competition from the developing world. Today the Canadian sector is facing increasing competition in both foreign and domestic markets from Asia, and especially China. Other developed countries such as the United States and European nations share the challenge presented by exports of advanced wood products from Asia, which are increasingly of comparable quality to those manufactured in North America and Western Europe.¹

Canadian manufacturers have responded to these challenges by improving their productive capacity through the introduction of new technologies and machinery, as well as adopting more sophisticated management practices. The results have been positive, with sector productivity increasing at an average annual rate of more than 4% through much of the decade². However, a related outcome of this change has been the requirement for a better trained and more qualified workforce, as employers can no longer rely on traditional labour sources. There is now a shift away from unskilled and semi-skilled labour towards a more skilled workforce with many positions involving technological, design or managerial skills. The concern today is that manufacturers are finding it increasingly difficult finding suitably skilled workers to meet the changing requirements and that the post-secondary education and industry training system is not accessible or utilized by employers of every size.

¹ R. A. Malatest & Associates (2002). *A Situational Analysis of the Advanced Wood Products Manufacturing Industry*. prepared for the Wood Manufacturing Council.

² Statistics Canada, Annual Survey of Manufacturers & Loggers (*Compound Annual Growth Rate)

Adding to this challenge is the existence of a significant knowledge and information gap that pervades a large segment of the wood product manufacturing sector. As the sector is dominated by small and medium-sized enterprises, many of these employers are simply not aware of the education, training and upgrading opportunities that may be available to the sector. The majority of these employers are owner-operators who have built their companies after having learned the business by working on the shop floor. While this group of employers is dynamic and entrepreneurial, the tendency is to operate independently and to rely on in-house training for workforce development. These employers tend not to engage the local schools or post-secondary institutions for their labour or training needs, and as a result do not benefit from these development opportunities. As workforce productivity becomes the central factor for success throughout the sector, small and medium-sized employers need to become more proactive in nurturing relationships with local educators and trainers, in order to encourage the development of training and upgrading programs to meet their emerging needs.

International Trends in Training and Development

Canadian manufacturers are not alone in their efforts to improve the competitiveness of the workforce in the face of rising competition from low-cost producers in Asia, Latin America and elsewhere. Intensified competition has been a major driving force behind technology innovation and structural change in Europe's forest and wood industries. Smaller enterprises in the European wood sector are pursuing a strategy of quality and higher value added, while larger innovative "locomotive" companies, such as IKEA, can lead development forward and continue to market products at the international level. As a result, alliances of small and medium-sized manufacturers have established stable export markets with locomotive companies, allowing smaller manufacturers to keep production local. In Sweden, IKEA has done just that with regard to furniture.³

In other parts of Europe, manufacturers are implementing innovative human resource solutions to eliminate waste and improve productivity. The introduction of "lean" manufacturing is one such trend that concentrates on eliminating waste and inefficiencies throughout all levels of the organization. It involves implementing quality management standards within the organization so that performance can be tracked through improved labour utilization, and that problems can be identified and addressed in real-time. Eliminating waste and reducing labour costs includes, among other practices, setting standards for payroll errors, excessive absences and overtime management, and

³ Brege, S, Johansson, H-E & B Pihlqvist (2005). "Wood Manufacture - the Innovation System that beats the System. VINNOVA Analysis VA 2005:01.

maintaining optimal production by filling schedule gaps with appropriate workers and scheduling work according to economic cycles.⁴

Innovation and productivity may also be furthered by umbrella organizations that serve to strengthen the ties between employers from related sectors and training institutions. In Europe, InnovaWood functions as one such association; an umbrella organization that integrates four European networks (Eurofortech, Eurifi, Euroligna and Eurowood) in the forest, wood-based and furniture industries. The InnovaWood Initiative was launched in 2001 and includes universities, training centers, technical organizations and industry associations involved in the promotion and development of Europe's forestry and wood sectors. These organizations promote and develop new vocational training programming and increase economic competitiveness across sectoral chains and countries.⁵

Worker recruitment in manufacturing is also changing with an increased emphasis on communicating the more important motivators and values to help create proper and well balanced expectations towards the job and the employer. When recruiting younger employees, it is advantageous to explain advancement opportunities for those who are high performing and motivated.⁶ Equally important is the provision of training and development in attracting and retaining quality candidates. As reported by *Forbes* magazine, the "100 Best Companies to Work For" all had professional development and training opportunities, and received twice as many applications for employment while experiencing half the worker turnover.⁷

1.1 Project Purpose

In an effort to better understand and address the human resource issues facing the sector, the Wood Manufacturing Council commissioned the *National Human Resource Sector Study for the Advanced Wood Products Manufacturing Sector* (HR Sector Study). The national study explores key human resource issues and presents a series of recommendations that provide the foundation to build a comprehensive human resource strategy for the sector. This study builds on a similar examination of the sector's workforce conducted in 2005⁸. The information will be used to:

⁴ Macpherson, S (2007). "The year of lean labour". *Manufacturing Today*. May 31, 2007. <http://www.manufacturingtoday-europe.com/article-page.php?contentid=2758&issueid=132&se=1&searchphrase=year%20of%20lean%20labour>
⁵ <http://87.192.2.62/innovawood/>

⁶ Michael, J. H., Leschinsky, R, and M.A. Gagnon. (2006). "Motivators and Desired Company Values of Wood Products Industry Employees: Investigating Generational Differences". *Forest Products Journal*, Vol. 54(1): 34-39

⁷ Macdonald, I (2002). *Training Means Re-Training-How to Get and Keep the Best Employees*. Retrieved March 2010. <http://www.cawp.ubc.ca/Resources/Articles/TrainingMeansRetaining/tabid/2829/Default.aspx>

⁸ Wood Manufacturing Council, National Human Resource Sector Study for the Advanced Wood Processing Industry in Canada, Woodbridge Associates Inc., June 2006.

- Develop a comprehensive understanding of the AWP manufacturing sector including:
 - The impact of labour market cycles;
 - Competition for labour from other industries;
 - Demographics – a look at the workforce, employers, age dynamics and core occupations in the industry;
 - Skills shortages, recruiting and retention challenges;
 - Gaps in training and upgrading; and
 - Mobility across firms, sectors and industries.
- Provide a detailed overview of the current training, college and apprenticeship programs in support of industry workers.

1.2 Scope of Work

The research project encompasses the five sub-sectors that comprise the advanced wood products manufacturing sector. The study relies on the North American Industry Classification System (NAICS) to define the sector and to analyze the individual sub-sectors. Tabled below are the eleven individual NAICS codes assigned to the five AWP manufacturing sub-sectors⁹.

| Table 1-1: Advanced Wood Products Manufacturing Sector | | |
|---|-------------------|--|
| Sub-sector | NAICS Code | Description |
| Windows & Doors | 321911 | Wood Windows and Doors |
| Millwork | 321919 | Other Millwork (e.g., flooring, mouldings, components, etc.) |
| Factory-Built Housing & Components | 321991 | Modular/Mobile and Panelized Home Manufacturing |
| | 321992 | Prefabricated Wood Building Manufacturing |
| | 321999 | Other Miscellaneous Wood Products |
| Cabinets | 337110 | Wood Kitchen Cabinets and Counter Tops |
| Furniture | 337121 | Upholstered Wood Household Furniture |
| | 337123 | Other Wood Household Furniture Manufacturing |
| | 337127 | Institutional Furniture |
| | 337213 | Wood Office Furniture, Custom Architectural Woodwork |
| | 337215 | Showcases, Partitions, Shelving, and Lockers |

1.3 Research Requirements

The research activities involved in this project included:

- Literature review of secondary information available from provincial and national industry associations, training institutions and government agencies;
- Statistical analysis based on secondary sources provided by Statistics Canada, Canadian Mortgage & Housing Corporation and related agencies;

⁹ Certain NAICS codes previously attributed to the sector have been consolidated into related categories (i.e., 337122, 337212, 337213).

- Inventory of industry training programs in support of Canada's advanced wood products sector, including apprenticeship, college and institutional programs;
- Consultations with key industry stakeholders to discuss human resource challenges facing employers;
- Survey of manufacturers with specific reference to ten core occupations as identified by the Committee; and
- Final report including recommendations for addressing demand and supply issues in the workforce.

1.4 Approach

Under the guidance of the Steering Committee, the consultant developed a research plan encompassing all research activities and corresponding timeframes. Key elements of the research plan were:

- *Interviews with key informants* – interviews were held with stakeholders for the purpose of identifying important human resource challenges facing employers. Interviews were conducted both before and during survey administration.
- *Survey and sample design* – the consultant employed a mixed mode survey approach utilizing surface mail, telephone and online administration. The sample was drawn from various sources, including membership lists as provided by association representatives and a directory of businesses operating within the sector.
- *Administration* – the survey was field tested and implemented in late January 2010 and remained open for 10 weeks. Extensive telephone follow-up was undertaken to promote the response. Committee members were actively engaged with industry stakeholders and employers in promoting their participation in the research.
- *Report Validation* – the Steering Committee reviewed and validated the draft final report and recommendations (May 2010) with the objective of ensuring the report findings and recommendations were appropriate.

1.5 Report Structure

This report is organized into 5 sections:

1. Section 1 introduces the project and describes the work to be undertaken;
2. Section 2 provides a profile of the advanced wood products manufacturing sector based on statistical data provided by Statistics Canada and other data sources;
3. Section 3 provides a discussion of the human resource and training issues facing employers, as identified through the key informant process, and highlights certain best practices related to education and training programming in support of the sector;
4. Section 4 contains the findings and analysis of the survey research; and
5. Section 5 offers conclusions and recommendations for the consideration of the Committee.

1.6 Risks and Research Limitations

It should be noted that the study has several risks associated with the findings presented. Among these include:

- *Study Timing.* The research was completed during a time in which wood product manufacturers in Quebec were also participating in a labour market study similar to the WMC study. It was agreed that the data results from the Quebec based study would be provided to the WMC for inclusion in the HR sector study. This information will be incorporated into the final report.
- *Statistical Data Sources.* The report relies extensively on Statistics Canada's Annual Survey of Manufacturers & Loggers. This compulsory survey is administered annually and provides comprehensive data on the number of establishments, employment and value of shipments within Canada's manufacturing industry. A limitation of this survey is that the data is not specific enough to the advanced wood products sector and therefore may underestimate its size and scope. In many cases, data are suppressed at the provincial level limiting analysis. Timeliness of the survey is also a drawback as results are typically not available till 18 months after data collection (2008).
- *Response to Employer Survey.* It was hoped that approximately 300 employers would participate in the survey, including manufacturers from Quebec, and that all five manufacturing sub-sectors would be sufficiently represented. The study,

however, resulted in a lower level of completions (n = 204). With only 14 responses from millwork manufacturers, some caution should be exercised in the interpretation of the findings, especially when examining data at the regional and/or sub-sector level.

2 SECTOR PROFILE

The Advanced Wood Products (AWP) manufacturing sector is an example of a sector in transition and, as such, its human resource needs are evolving and changing. More specifically, there are concerns that the sector is increasingly unable to find suitably skilled workers for its available positions, and that future demands will see current staff unable to meet the requirements of changing technology. The current feeling in the sector is that more must be done to attract, train and retain qualified workers, as a result of globalization, the rapid pace of technological change and Canada's aging population.

2.1 Economic Profile

The following profile is based on statistical data encompassing the advanced wood products manufacturing industry. Data sources used for this analysis are drawn from:

1. Annual Survey of Manufacturers & Loggers (2008);
2. Canadian Business Patterns Database (2008);
3. Labour Force Survey (2009);
4. Census 2006;
5. Trade Data Online, Industry Canada (2009); and
6. TD Economics, Bank Financial Group (2009).

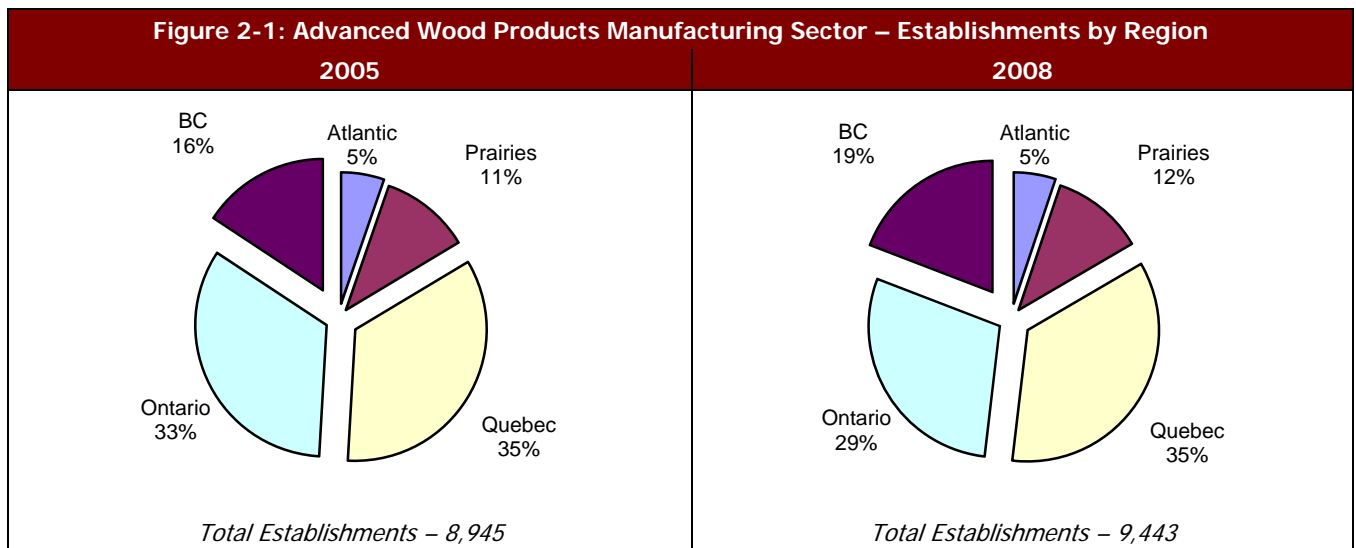
2.1.1 Establishments in the Advanced Wood Products Manufacturing Sector

In 2008 the AWP manufacturing sector contained a total of 9,443 establishments, an increase of 5.6% since 2005. On average, furniture manufactures accounted for close to half of all establishments, although their share of establishments has been declining in recent years. Among the five sub-sectors, only cabinet and counter top manufacturers accounted for an increasing share of AWP establishments between 2005 and 2008 (Table 2-1).

| Table 2-1: Advanced Wood Products Manufacturing Sector Number of Establishments by Sub-sector, 2005 – 2008 | | | | | | | | |
|---|--------------|-------------|--------------|-------------|--------------|-------------|--------------|-------------|
| Sub-sector | 2005 | | 2006 | | 2007 | | 2008 | |
| Furniture | 4,443 | 50% | 4,342 | 48% | 4,441 | 47% | 4,388 | 46% |
| Cabinets | 1,593 | 18% | 1,709 | 19% | 1,843 | 20% | 1,941 | 21% |
| Factory-Built Housing & Components | 1,287 | 14% | 1,302 | 15% | 1,419 | 15% | 1,439 | 15% |
| Millwork | 1,131 | 13% | 1,126 | 13% | 1,184 | 13% | 1,197 | 13% |
| Windows & Doors | 491 | 5% | 489 | 5% | 479 | 5% | 478 | 5% |
| Total | 8,945 | 100% | 8,968 | 100% | 9,366 | 100% | 9,443 | 100% |

Source: Statistics Canada, Annual Survey of Manufacturers & Loggers

According to the Annual Survey of Manufacturers & Loggers, Quebec and Ontario together typically account for about two-thirds of the AWP manufacturing sector. Between 2005 and 2008, the sector added more than 500 establishments with the majority of growth located in British Columbia. In contrast, the number and share of manufacturing establishments declined significantly in Ontario, while the share of establishments in other regions remained steady over this period (Figure 2-1).



Source: Statistics Canada, Annual Survey of Manufacturers & Loggers

Statistics Canada's Business Patterns Database provides information on Canadian establishments based on the percentage share of workers employed. Information is aggregated in four categories, including micro-sized companies (1-4 employees), small companies (5-99 employees), medium-sized companies (100-499) and large companies with more than 500 workers. Due to dissimilar data collection methods, these figures are not necessarily comparable to data provided through the Annual Survey of Manufacturers &

Loggers. Nevertheless, the data provides an important profile as to the employment characteristics of the individual sub-sectors that comprise the AWP sector (Table 2-2).

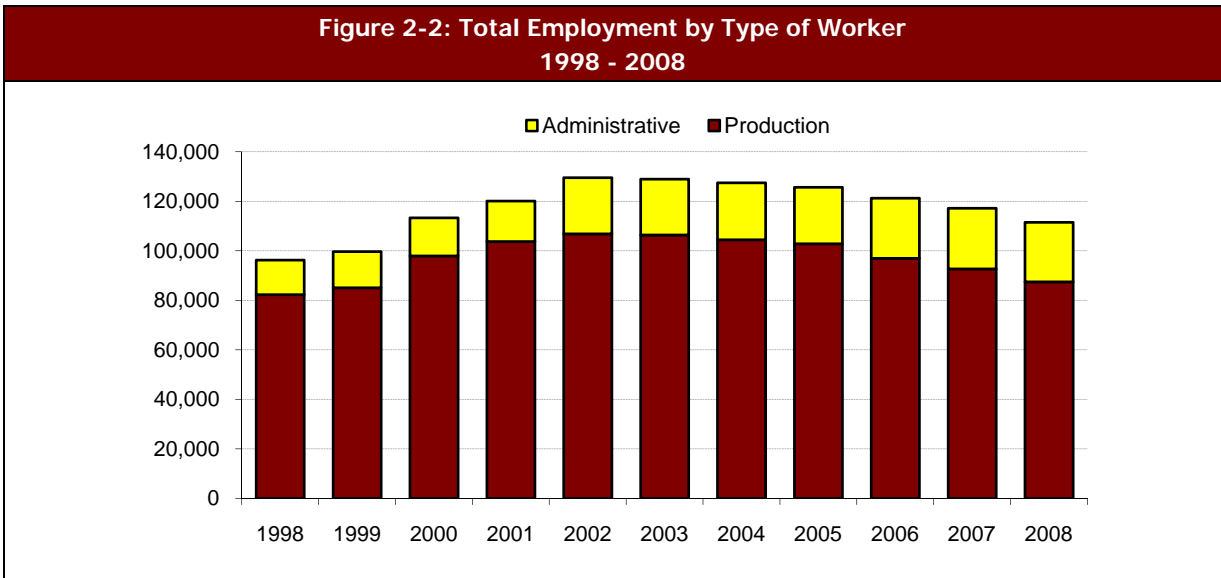
| Table 2-2: Advanced Wood Products Manufacturing Sector Establishments by Employment Size, 2008 | | | | |
|---|--------------------|---------------------|-------------------------|---------------------|
| Sub-sector | Micro (1-4) | Small (5-99) | Medium (100-499) | Large (500+) |
| Furniture | 40% | 56% | 3% | 0.4% |
| Cabinets | 38% | 59% | 3% | 0.1% |
| Millwork | 29% | 67% | 4% | 0.0% |
| Factory-Built Housing & Components | 38% | 58% | 4% | 0.1% |
| Windows & Doors | 22% | 71% | 6% | 0.3% |
| Total | 37% | 59% | 4% | 0.2% |

Source: Statistics Canada, Canadian Business Patterns Database, December 2008

The AWP manufacturing sector is dominated by small (59%) and micro-sized (37%) manufacturers, who employ less than 100 workers. In 2008, a total of 12 (0.2%) AWP manufacturers indicated they employed more than 500 workers, nine of which operate in the furniture manufacturing sub-sector. Furniture manufacturing is the largest of the five sub-sectors comprising the AWP manufacturing sector.

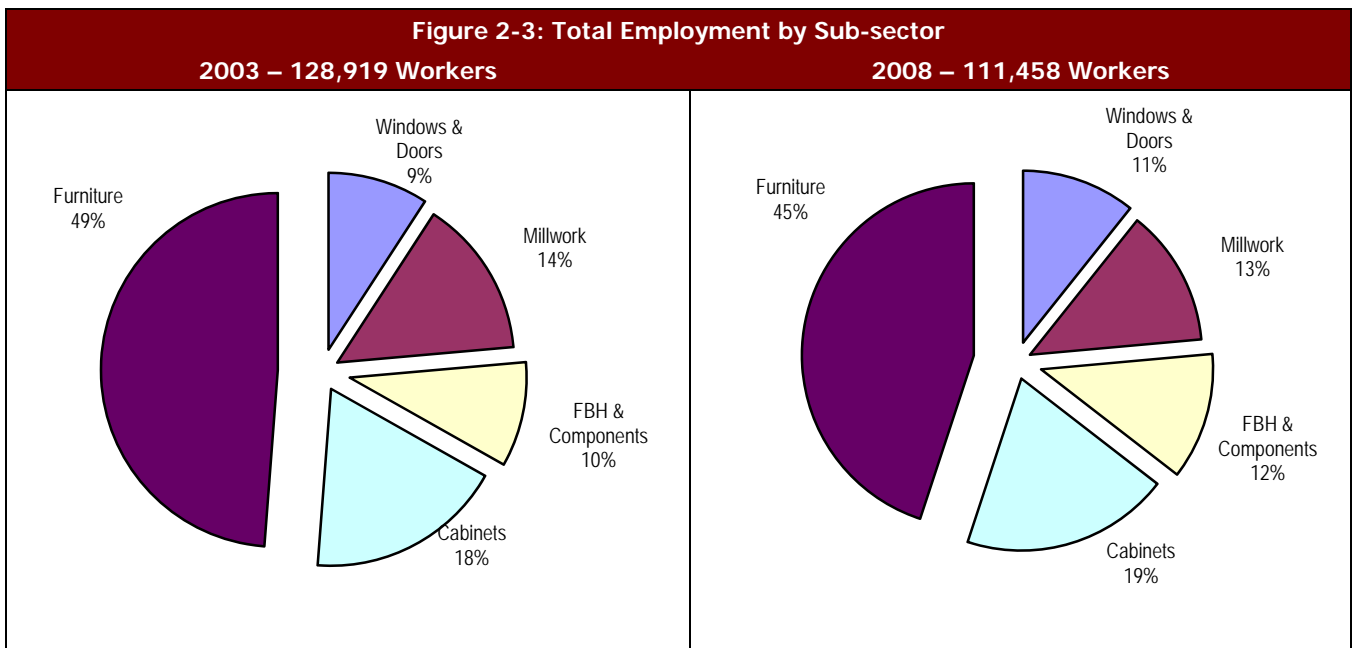
2.1.2 Employment in the AWP Manufacturing Sector

Total employment for the AWP manufacturing sector increased from 96,255 in 1998 to 111,458 in 2008 – an increase of 16% over this period. On average, 3 out of 4 workers in the sector are employed in the *production* of advanced wood products. Employment peaked at close to 130,000 in 2002 and then declined in each of the subsequent years. With the slowdown in economic activity beginning in 2008, current employment is anticipated to have declined further still (Figure 2-2).



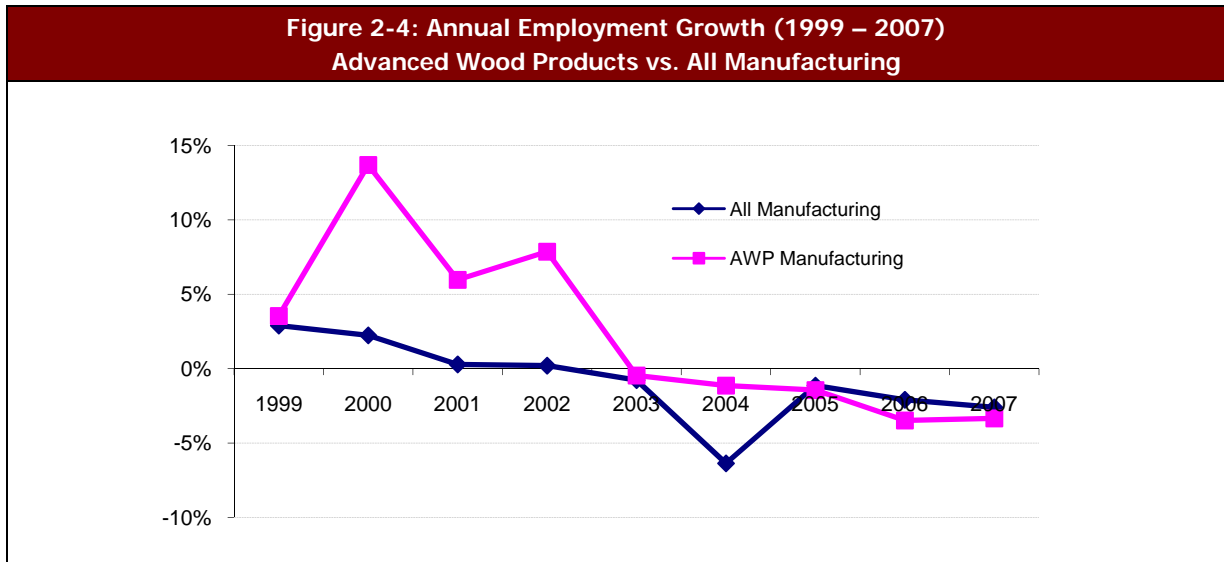
Source: Statistics Canada, Annual Survey of Manufacturers & Loggers

The decline in total employment between 2003 and 2008 was felt most significantly in the furniture sub-sector, where actual employment fell by close to 13,000 workers. As a share of total employment, furniture manufacturers accounted for 44% of workers in 2008, down from 49% in 2003. During this period, actual employment increased among manufacturers of windows and doors and factory-built housing and components (Figure 2-3).



Source: Statistics Canada, Annual Survey of Manufacturers & Loggers

The AWP manufacturing sector experienced significant employment growth in the early 2000s. However, similar to other manufacturers, employment growth has followed a downward trend since this time, eventually turning negative beginning in 2003 (Figure 2-4). Despite falling employment, sector revenues have remained relatively stable through 2008 (see Section 2.2.3), reflecting an important increase in worker productivity over this period.

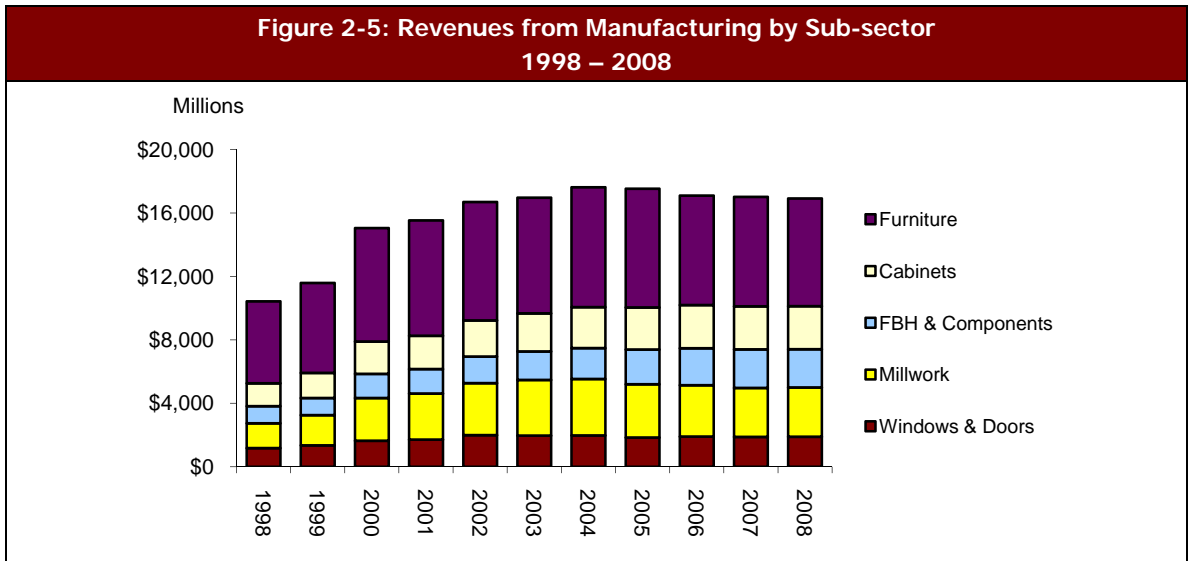


Source: Statistics Canada, Annual Survey of Manufacturers & Loggers

2.1.3 Revenues from Manufacturing

In 2008, the AWP manufacturing sector generated just under \$17 billion in total revenue, an increase of 62% over revenues generated in 1998. Revenues for the AWP sector increased sharply in the early part of the decade, and then leveled off beginning in 2004. Since this time, revenues have remained relatively stable at around \$17 billion annually.

Individual sub-sectors have experienced uneven growth since 1998. While revenue growth was lowest in the furniture sub-sector (31%), the factory-built housing and component sub-sector grew by 125% between 1998 and 2008. Manufacturers of millwork and cabinets also experienced marked revenue growth over this 10-year period – 98% and 88% respectively (Figure 2-5).

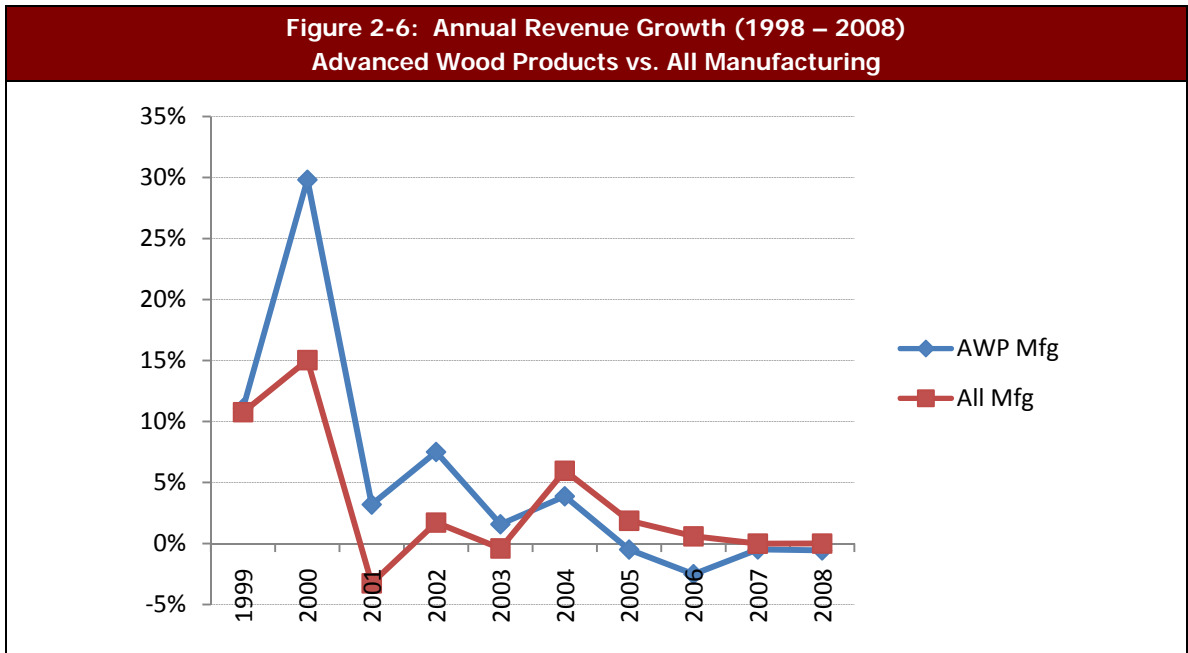


Source: Statistics Canada, Annual Survey of Manufacturers & Loggers

It is anticipated that total revenues for the sector will have been negatively impacted as a result of the economic downturn beginning in 2008. As sector growth is highly dependent on residential and non-residential construction activity, the change in the value of building permits can provide an indication of the extent to which the AWP sector might have been affected. From 2008 to 2009, the value of all building permits issued in Canada fell from \$70.4 billion to \$61.1 billion¹⁰, a decline of 13.3%. Applying a similar percentage decline to the AWP sector would result in revenues falling by well over \$2 billion year-over-year.

In the early 2000s, revenue growth in the AWP manufacturing sector significantly outpaced growth rates of other Canadian manufacturers. Revenues for the AWP sector increased at an average annual rate of 5.3% between 1998 and 2008, compared to 3.2% for the broader manufacturing sector. Nevertheless growth rates for Canadian manufacturers have followed a downward trend for most of the decade. For AWP manufacturers, annual growth rates have been around 0% or below since 2005, and now lag the broader manufacturing sector (Figure 2-6). Reversing this trend will be challenged by the sector's ability to improve manufacturing performance and penetrate new markets, both domestic and international.

¹⁰ Statistics Canada, CANSIM, Tables 026-0003, 026-0008 and 027-0008



Source: Statistics Canada, Annual Survey of Manufacturers & Loggers

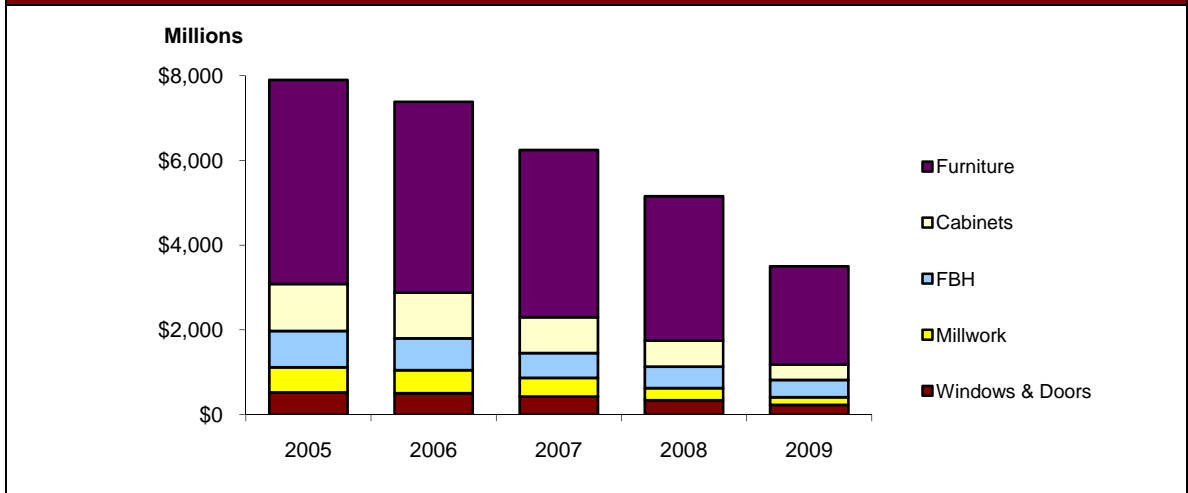
2.1.4 Export Revenues

The AWP sector is heavily dependent on export markets for its revenue. In 2005, revenues from shipments to international markets reached \$7.9 billion, or 45% of total sector revenue (\$17.5 billion). In 2009, the share of revenue attributed to exports fell 56% to \$3.5 billion, while total revenue for the sector remained virtually flat through 2008¹¹. Perhaps surprising has been the role of the domestic market in helping to sustain the AWP manufacturing sector over this period.

Falling exports have impacted all Canadian manufacturers of advanced wood products. Fuelled by a rising Canadian dollar and declining economic activity in US markets, Canadian exports of advanced wood products fell by 56% between 2005 and 2009. Millwork and cabinet manufacturers were among the hardest hit, with export revenues declining 70% and 67% respectively.

¹¹ Note that manufacturing revenue data was not available for 2009.

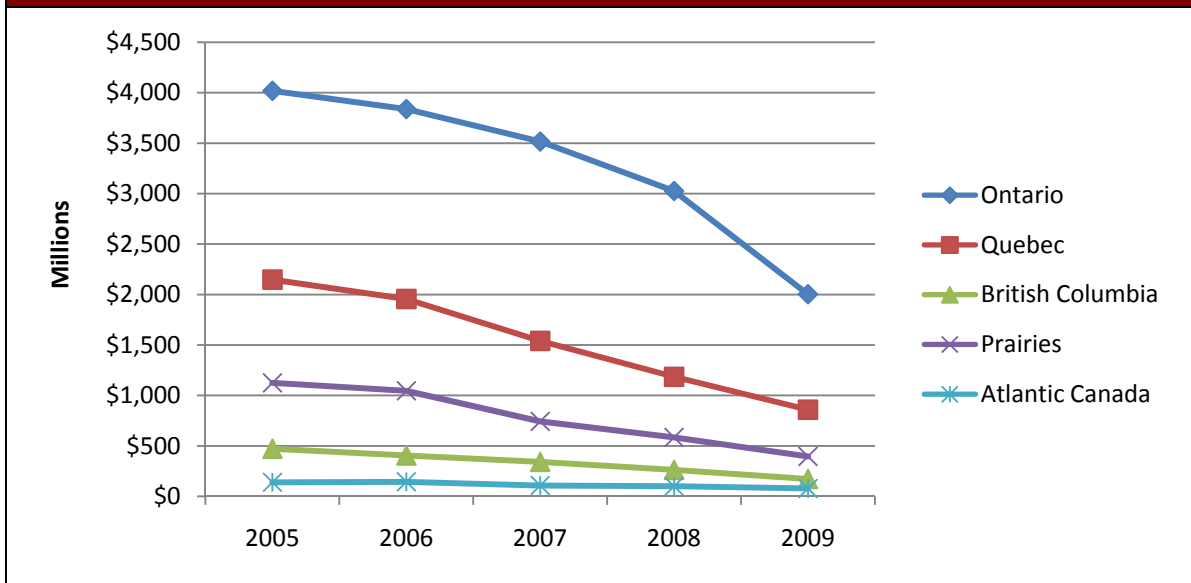
**Figure 2-7: Revenues from Manufactured Exports by Sub-sector
2005 – 2009**



Source: Industry Canada, Trade Data Online

As the two largest exporting provinces, Ontario and Quebec experienced the most significant declines in export revenues, together falling from \$6.2 billion in 2005 to \$2.9 billion in 2009. In percentage terms, AWP exports from British Columbia and the Prairie Provinces fell by almost two-thirds – 64% and 65% respectively – between 2005 and 2009. Exports from Atlantic Canada fell the least at 44% over this period (Figure 2-8).

**Figure 2-8: Exports by Region
2005 - 2009**



Source: Industry Canada, Trade Data Online

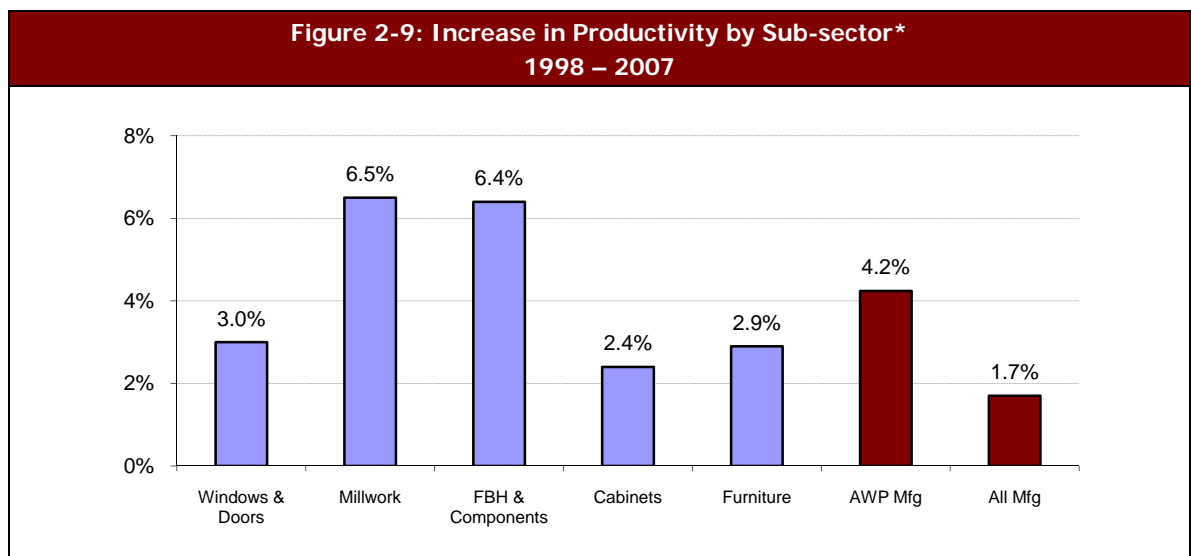
2.1.5 Manufacturing Productivity

An important trend within Canada's advanced wood products manufacturing sector is the increase in worker productivity since 1998. Improvements in output per worker may result from changes in:

- the level of capital expenditures for the purchase of more efficient equipment;
- the amount and type of employee training and work incentives offered;
- the degree to which work flows are adjusted over time;
- the size and composition of the work force.

Output per employee may fall if employers do not adequately invest in the competence of its labour force, or in modernizing its plants to improve the efficiency of operations.

As manufacturing operations have become more technologically advanced due to the adoption of new technologies (e.g., CNC machines, CAD/CAM design systems), manufacturers today are able to generate more output per unit of labour. Using manufacturing value-added¹² as a measure of performance, advanced wood product manufacturers were able to generate on average an additional 4.2% output per production worker between 1998 and 2007. This measure of sector performance far exceeds that achieved by all other Canadian manufacturers (1.7%) over this period.



Source: Statistics Canada, Annual Survey of Manufacturers & Loggers (*Compound Annual Growth Rate)

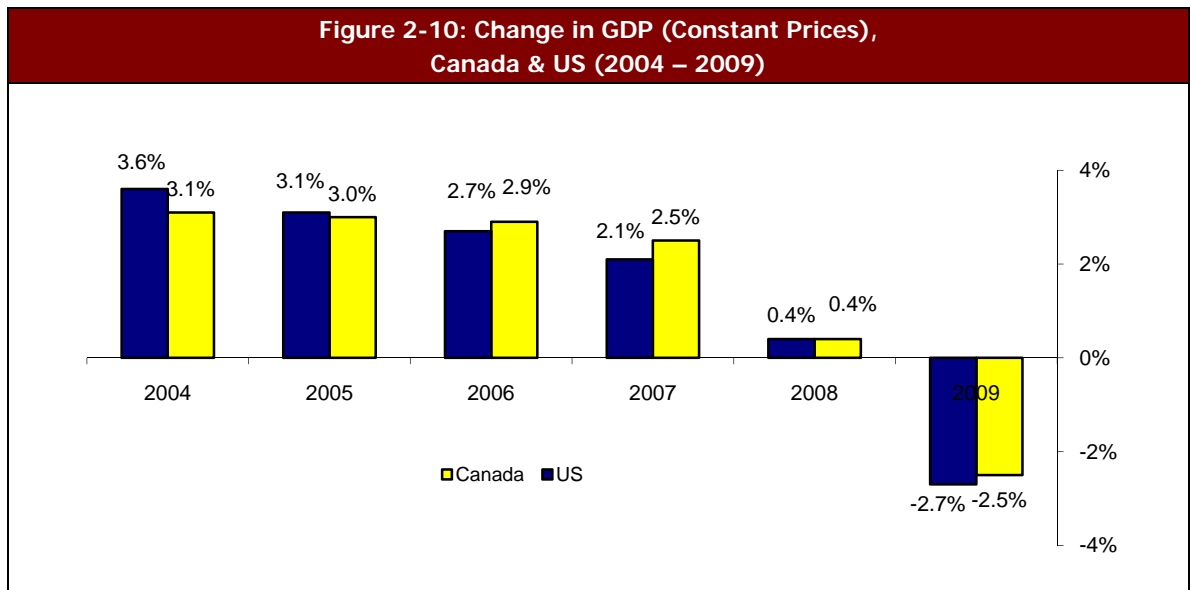
¹² Value added reflects net output calculated by taking gross output less the cost of purchased inputs

2.2 Key Economic Indicators

Canada's advanced wood products sector operates in the international economy with the majority of its exports destined for the United States. The decline in overall economic activity and GDP since 2008 directly impacts the sector's economic well being and prospects for growth in the near and medium terms. This coupled with a rising Canadian dollar presents a major barrier to growth for the advanced wood products sector.

2.2.1 Change in Canada / United States Gross Domestic Product

Figure 2-10 shows the change in GDP (constant prices) in both Canada and the US between 2004 and 2009, falling sharply in 2008 and contracting in 2009. The 2009 contraction in both the US and Canadian economics was the steepest decline in decades. The interconnectedness of the two economies implies that manufacturing shipments would decline in both domestic and export markets. New market development for Canadian based exporters is becoming an important strategy to reduce dependency on US markets.

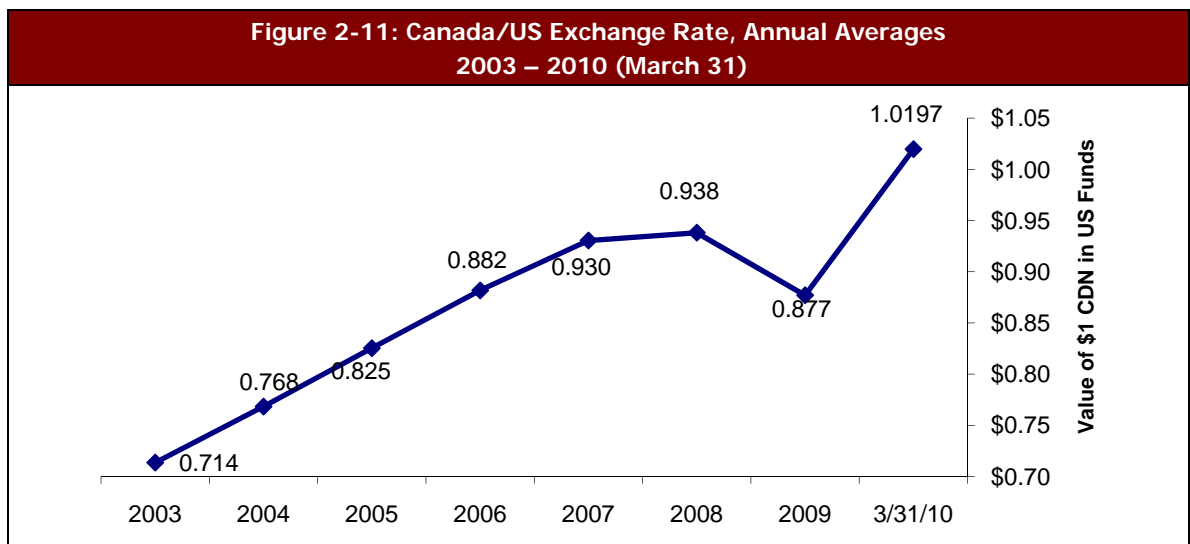


Source: International Monetary Fund - 2009 World Economic Outlook (Annual percentages are year-on-year changes, national currency)

2.2.2 Canada / United States Exchange Rate

A rising Canadian dollar versus the US dollar makes Canadian exports less competitive in these markets. Over the past several years, the value of the Canadian dollar compared to the US dollar has steadily risen, with the Canadian dollar recently surpassing parity with the US dollar. As the US is Canada's primary export market for advanced wood products, the high Canadian dollar has negative trade implications for the sector. Figure 2-11 shows the

performance of the Canadian dollar for the period 2003 to 2010 (March 31). Several economists anticipate “dollar parity” to persist in the short and medium term.

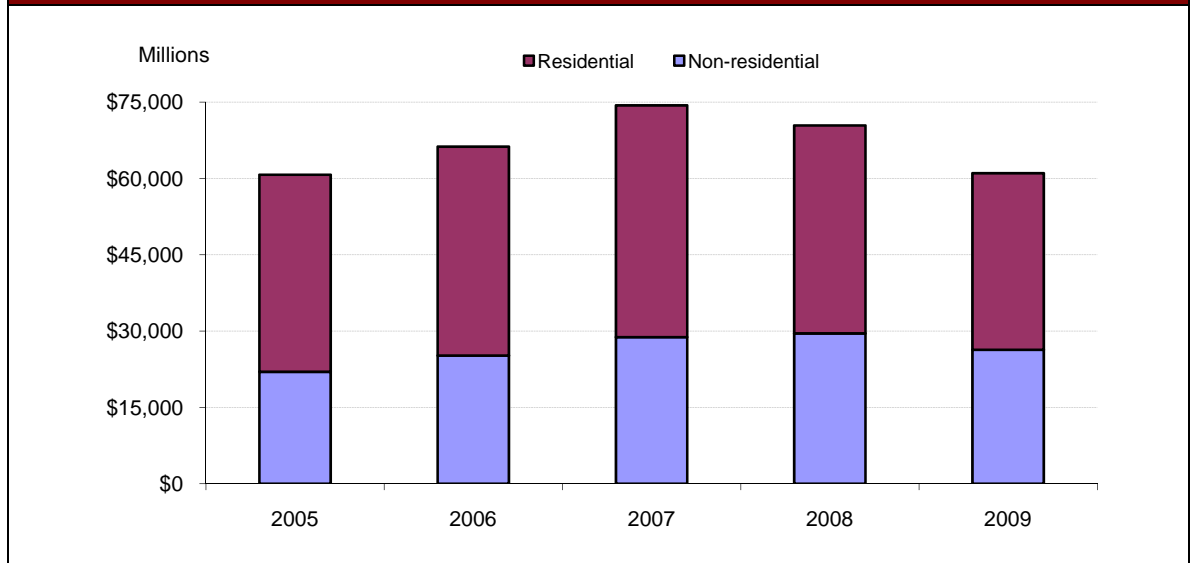


Source: Bank of Canada

2.2.3 Residential and Non-Residential Building Permits

Residential and non-residential construction is generally correlated with positive economic activity in the advanced wood products manufacturing sector. The value of building permits issued in Canada increased 22% from 2005 through 2007, helping to sustain the AWP manufacturing sector’s domestic market. Since that time the value of building permits has declined across Canada, largely due to a slowdown in residential construction activity. Declining demand for Canada’s advanced wood products from international customers combined with a protracted slowdown in domestic construction activity presents a major challenge for sustaining growth rates in Canada’s AWP manufacturing sector (Figure 2-12).

**Figure 2-12: Value of Residential & Non-Residential Building Permits
2005 -2009**



Source: Statistics Canada, CANSIM, Tables 026-0003, 026-0008 and 027-0008

2.2.4 Construction Expenditures on New Dwellings and Renovations

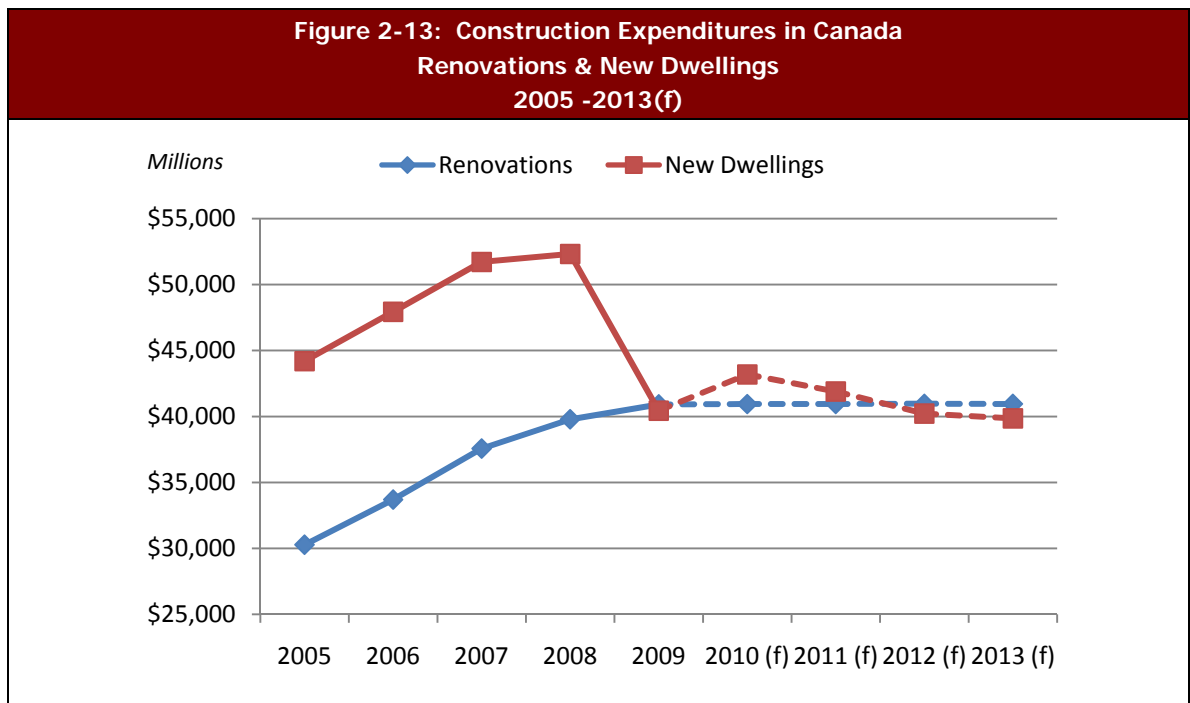
Expenditures on residential construction, including new dwellings and home renovations, are primary factors driving consumer demand in the advanced wood products manufacturing sector. Construction expenditures on new residential dwellings progressed at a steady pace through 2008, then fell sharply in line with declining housing starts in 2009. Overall investment in residential construction is forecast to increase in 2010, buoyed by low borrowing rates and federal incentives to promote home renovation activity, and then follow a downward trend through 2013¹³.

Spending on home renovations – including alterations and improvements but excluding repairs and maintenance – also moved up smartly between 2005 and 2009, and is projected to remain relatively stable through 2013. The renovation market has benefitted from strong economic growth of recent years and the solid performance of the overall housing market. Low mortgage rates, high levels of housing starts and record sales of existing homes have all contributed to the pick-up in renovation activity. Sales of existing homes are a leading indicator of renovation spending because homeowners generally undertake renovations within the first three years after buying a house.

Despite the recent slowdown in economic activity, renovation spending in Canada grew by 2.8% and reached \$40.9 billion in 2009. An important part of this growth is attributed to

¹³ TD Economics, Long-Term Economic Forecast, February 2010

the federal government's Home Renovation Tax Credit introduced in January 2009 and phased out in January 2010. Estimates developed by TD Economics suggest that federal stimulus bolstered renovation activity by \$4.3 billion above what it would have been during this one-year period¹⁴. Renovation activity is projected to stabilize at around \$40 billion annually through 2013, as both new housing starts and sales of existing homes are expected to remain tepid during this period.



Source: Statistics Canada, CMHC, TD Economics (forecast)

2.3 Summary

Canada's advanced wood products manufacturing sector has proved to be resilient in the face of declining export market share and competition from lower-cost international manufacturers. Much of the sector's success may be attributed to new capital investments in technology and resulting improvements in productivity. However, since the mid-2000s, overall growth has been stagnant with certain sub-sectors, such as furniture, lagging the performance of others. Future growth will continue to depend on productivity improvements, including greater emphasis on developing a more highly skilled and adaptable workforce, as well as progress in diversifying international markets for Canadian exports.

While new technology challenges employers to recruit and train workers with the ability to operate the technologies, there is the inherent benefit that allows Canadian manufacturers

¹⁴ TD Economics, Observation, February 2010

to better compete in the world market, especially in light of the increased cost and risk of transporting wood products over vast distances. New technologies afford manufacturers a level of flexibility and speed of change that enables them to compete in the new world of customization. It is now the case that traditional manufacturing techniques may still serve the craftsman but are no longer viable for the small or medium-sized enterprise in the changing economy. Today new technology has sifted down to the “small shop milieu” – the area in which industry training needs are greatest.

3 DISCUSSION OF HUMAN RESOURCE & TRAINING ISSUES

As part of the research plan, the consultant arranged a series of interviews with manufacturers of advanced wood products across Canada. The intent of these discussions was to identify important human resource issues facing employers, particularly in the context of the current economic climate. The consultant conducted a total of 12 key informant issues, six of which involved manufacturers in Ontario, three from British Columbia, two from Quebec and one from Manitoba. The following discussion highlights the range of human resource themes and issues pertinent to the sector's workforce. The discussion also highlights certain best practices in post-secondary education and training programs specific to the advanced wood products sector in Canada.

3.1 Skills Shortages

Although it is not the case today, over much of the past decade most employers experienced shortages of skilled, semi-skilled and professional technical workers, especially during periods of robust activity. Occupations identified as experiencing chronic shortages include skilled trade workers, such as cabinet makers, industrial electricians and maintenance mechanics, many of whom also fall within an older age demographic. Technical skilled workers, such as CNC operators and wood finishers, were also identified as difficult positions to recruit, given the specialized nature of the work and a perceived lack of "relevant" training opportunities. In the longer term, as the workforce continues to age and competition for more highly qualified workers increases, employers expect skill shortages to persist across most skilled and technical occupations.

With the industry becoming more technology-intensive and innovative, the need for professional and technical workers, including industrial designers and engineers, has become a growing challenge, particularly for smaller operators. The sector's focus on developing new and innovative products is further driving the need for workers with more specialized skill sets and knowledge. To meet these demands, employers recognize that they need to raise the industry's profile within the post-secondary community in order to make the industry more attractive to new graduates. Finally, employers continue to face the challenge of developing existing staff for senior management and operational positions, and cite the need for upgrading programs to provide staff with the skills and knowledge to succeed in these positions.

3.2 Recruitment

Recruiting workers for entry-level positions is generally not a challenge for employers, as most are drawn from the secondary school system, as well as the general labour force. The majority of these workers are unskilled with little or no direct work experience, and require extensive on-the-job training. Although attracting entry-level workers to the industry may not be a problem, recruiting suitable candidates capable of growing with the business has been an ongoing challenge. Worker turnover is often high during peak demand periods, as workers with experience are motivated by higher wages in competing industries, such as construction and Ontario's auto industry. This employment model makes it difficult developing a stable production workforce, capable of pursuing long-term careers within the company or sector.

Employers typically rely on the post-secondary and industry training systems for professional design and trade workers. Skilled trade workers are also recruited from other wood manufacturers and related industries, such as construction. Professional workers, including designers and engineers, are in constant demand, with the industry becoming more technology-intensive. Recruiting these workers is, however, a challenge, due to competition from other industries and a general lack of awareness of career opportunities within the advanced wood products manufacturing sector. Again, more effort from stakeholders is needed to attract graduates to the sector.

Employers remain very concerned as to their ability to recruit skilled workers and younger workers for the long term. Simply because the work has currently slowed down does not suggest that skill shortages are disappearing. In the longer term, with the population aging, competition for younger workers will increase across all industries. Given these trends, it is timely for industry stakeholders to pursue more proactive training and human resource development strategies and prepare for long-term economic growth.

3.3 Retention

During slow economic periods, employers are becoming more reluctant about laying off skilled and professional workers. Once they are gone, they do not come back, but move instead to other industries. So as not to lose qualified workers, employers are becoming more creative in an effort to retain key staff. Job sharing, flexible scheduling, career development and profit sharing, are becoming more widespread within the sector. Some employers indicated that in order to retain experienced workers, certain companies are willing to job-share highly qualified and valued workers.

Training and development opportunities are taking on greater importance in the sector, as a means of retaining workers and providing opportunities for career development. While employers are prepared to train new production workers on-the-job, upgrading programs for existing workers are often provided off-site (where available). Management and supervisory training, as well as programs involving new technology, are considered valuable tools for career enhancement and business development. Employers generally feel that there are not enough upgrading programs available and those that exist do not serve the specific requirements of the AWP manufacturing sector.

3.4 Training Gaps

Availability of “relevant” training programs was identified by most employers as the primary gap or deficiency within the education and training system. While a large segment of the workforce is comprised of production or semi-skilled workers, employers felt that new recruits (students) were not adequately prepared to meet even the entry-level standards of the industry. While employers are prepared to train new workers for specific jobs, many students do not have the aptitude or background that is now required by the sector.

Skills upgrading for existing workers is provided on-the-job or through a local training institution where available. Employers will send workers on short management training courses, as well as equipment operator courses (e.g., forklift, finishing). In the case of new machinery (e.g., CNC) or other technology, employers rely more on equipment suppliers and in-house training to provide workers with the skills and knowledge to effectively operate the equipment. The industry continues to go through a major transformation in terms of production and product development, and existing education and training programs are not fully meeting these changing technological requirements. In part, raising the level of awareness of training and upgrading opportunities available to small and medium-sized manufacturers will assist in addressing this training gap.

Industry training is well-considered among employers for the purpose of developing skilled trade workers, such as maintenance mechanics. While the financial cost is not considered an overarching barrier, the time away from the workplace for technical (in-class) training can be a challenge for both employers and workers (apprentices). Employers are reluctant to release workers for technical training during peak periods, and apprentices must forego income and also cover the costs associated with training, including travel, if programs are not available in the local area. Accessible and flexible training opportunities for skilled workers are particularly important for manufacturers located in more remote areas.

It was also identified through the research that developing a stronger relationship between employers and educational and training institutions is key to developing a sustainable

workforce. While program advisory committees are in place within training institutions, many manufacturers from across the country are not aware of their presence or do not have a full understanding of their role in program development. Informants supported the idea of establishing an industry advisory committee to help raise awareness among manufacturers who traditionally do not interact with the education and training system, and who stand to benefit most from the various training options available. Employers recognize that the future workforce will likely require a higher level of skill and education to sustain a more technologically advanced and innovative industry.

3.5 Human Resource Development Strategies

Key informants noted that it would be important to establish more formal structures to coordinate and promote workforce development strategies for the sector. The sector suffers from a lower public profile making it difficult to attract new recruits with the qualifications needed by employers. Increased public awareness and promotion of the sector as a viable career track will be an important part of a human resource strategy.

Based on informant input:

- Support for the establishment of an Industry Advisory Committee appeared widespread, particularly for the purpose of communicating with educators and trainers and developing programs relevant to the industry. Education and training programs need an industry presence to be successful.
- Similarly, employers supported the development of industry-led training programs to be co-funded by employers, workers and government. However, some respondents felt that industry-led training programs might not always be practical, given the specialized requirements of the individual sub-sectors and manufacturers. Training programs that are too broad in scope raise the risk of being less relevant to employers.
- Increased emphasis on co-op education and internships is well supported by employers. While many employers indicated that they currently take part in apprenticeship, internship and co-op programs, they suggested that increased emphasis is needed and programs should be expanded.
- Limited support for training brokerage. Although respondents indicated that the concept of providing custom training to workers from various employers has merit, some respondents felt that cost would be a barrier. In Manitoba for example, training brokerages have been tried with mixed results. Training brokerages are perhaps more successful in areas where there is a high concentration of manufacturers with similar training requirements.

- Development of national standards for a wider range of occupations is considered a good idea, though some informants felt it could be difficult to achieve given the specialized nature of certain occupations and development costs. Occupational standards already exist for a range of occupations within the sector, including finisher, supervisor, assembler and machinery operators, including CNC. An important first step would be to broaden awareness of these standards among small and medium-sized manufacturers before considering further development of national standards in other occupations.

3.6 Education and Training Development – Effective Initiatives

Highlighted below are some of the most effective training initiatives in Canada identified by the consultant based on the training inventory developed for the current study (Appendix D). The information was made available online through institutional and related websites. Not all institutions offer complete or fully-updated information on their programs; therefore, the information provided should not be considered a comprehensive analysis of “best practices” but more of a discussion of effective initiatives found in training programs in support of the advanced wood products manufacturing sector.

3.6.1 Programs with Industry Presence

Training institutions understand the benefits of having some level of industry participation in the programs they offer. This insures both industry awareness of the program and its graduates and also provides the opportunity to better align program curriculum to industry requirements.

An important level of industry engagement with training programs is the occurrence of industry consultation in curriculum development. For example, programs under the *Centre for Advanced Wood Processing* at the University of British Columbia benefit from an external advisory board consisting of representatives from the wood products sector across Canada, as well as UBC faculty members. The *Industrial Woodworking Technician* curriculum at Humber College in Ontario is also guided by an independent, industry-based advisory board. Also, faculty members of Nova Scotia Community College's *Wood Products Manufacturing Technology* program work closely with employers and industry organizations to ensure program relevance and standards.

Another aspect of industry presence is work-experience components or co-op programs. Examples of such programs include the *Integrated Advanced Manufacturing Technologies* program at Conestoga College. This four year Bachelor of Applied Technology program combines theory and hands-on training with real industry experience. Cégep de Saint

Félicien in Quebec requires students of the three year *Technologie de la transformation des produits forestiers* to complete two co-op sessions and the last term is taught in a working plant. Another example of a co-op program can be found at l'Université de Laval and their *Bachelor in Wood Design*. Work placements begin in the second year of this four-year program and must be completed in order to continue to the next level.

3.6.2 Laddered Programs

A strategy that many institutions have adopted provides a laddered approach to obtaining credentials. This allows students the opportunity to either discontinue after the first level of training, usually being a certificate program, or further their studies to achieve a diploma or a bachelor degree. The British Columbia Institute of Technology offers an extensive series of options within the *Industrial Wood Processing and Management Program*. Graduates of the *Wood Products Sales and Distribution* certificate program can continue on to achieve the Certificate of Technology for which credentials can be laddered and lead to a Diploma of Technology under the *Industrial Wood Processing and Management Program*. These programs are part-time and most courses are offered online. The Diploma program can also lead to a Bachelor of Technology in Management, Manufacturing or Technology Management.

Other institutions offering laddered programs include *Wood Products Manufacturing Technology* at Red River College in Manitoba, where credits obtained during the one year certificate program can be used toward the three year diploma program. Also, Mohawk College in Ontario offers a one year *Industrial Woodworking Techniques* certificate that is clustered with year one of the two year *Industrial Woodworking Technician* Diploma.

3.6.3 Management Programs for Experienced Workers

Many institutions offer programs designed for experienced industry workers to upgrade their skills or progress into management level positions. These often focus on increasing technical skills, while some institutions offer programs for experienced workers to develop skills in the area of management. For example, Thompson Rivers University in British Columbia offers the *Trades & Technology Leadership Program* leading to a Bachelor of Technology. Delivered primarily on-line, this program builds on the student's practical experience (e.g., trade qualification) to gain the business and leadership knowledge needed for management and other advanced positions.

Conestoga College in southern Ontario also offers the postgraduate *Woodworking Manufacturing Management* program. This one-year program is available to graduates of Conestoga's *Woodworking Technician* program, as well as individuals with industry

experience. Students gain knowledge in areas of management and manufacturing such as methods analysis, plant layout and support systems, material handling, quality control, cost estimating, production planning and personnel management. Students will also gain computer-related skills, specifically for computer-integrated manufacturing, CNC program processing and computer applications in areas such as inventory control and costing.

3.6.4 Post-Secondary Programs with High Graduation and Employment Outcomes

Below in Table 3-1 is a sample of Canadian post-secondary education and training programs in support of the advanced wood products manufacturing sector. These programs have been identified as having high rates of graduation and/or high rates of success for students finding employment related to their field of study. These and other programs might be considered useful education and training models upon which other programs may be developed or expanded.

Please note that outcomes information was not available for many of the programs identified in the Training Inventory, particularly in provinces that do not collect or publish graduate outcome information. Information was also obtained from a range of sources where different data collection methodologies were employed for different research purposes. Information varies by the year in which it was collected and whether employment outcomes relate directly to the field of study.

Table 3-1: Graduation & Employment Outcomes by Training Program

| Province | Institution | Program Name | Graduation Rate | Employment Rate |
|----------|---------------------------------------|--|------------------------|--|
| BC | BC Institute of Technology | Automated Woodworking Processes | 90% | 80% (80% in related field) |
| BC | BC Institute of Technology | Joinery (Cabinetmaker) Foundation | 78% | 91% (65% in related field) |
| BC | BC Institute of Technology | Manufacturing - Bachelor of Technology | n/a | 100% |
| BC | BC Institute of Technology | Wood Products Manufacturing | 89% | 78% (89% in related field) |
| BC | Camosun College | Fine Furniture – Joinery | 100% | 69% (74% in related field) |
| BC | Emily Carr University of Art & Design | Industrial Design | 29 graduates (2006) | 86% (92% in related field) |
| BC | North Island College | Joinery/Cabinetmaking Foundation | 100% | 96% (71% in related field) |
| BC | Okanagan College | Carpentry/Joinery | 87% | 82% (79% in related field) |
| BC | Selkirk College | Fine Woodworking | 88% | 75% (50% in related field) |
| BC | Thompson Rivers University | Joinery | 100% | 73% (100% in related field) |
| BC | University of British Columbia | Wood Products Processing – Bachelor of Science (Centre for Advanced Wood Processing) | n/a | High (64% in related field in first month after graduation) |
| MB | Red River | Carpentry and Woodworking | 22 graduates (2007) | -- (83% in related field) |
| MB | Red River | Wood Products Manufacturing Technology – Certificate | 25 graduates (2007) | -- (50% in related field) |
| ON | Algonquin | Cabinetmaking & Furniture Technician | 56% (2008/09) | 84% (2008/09) |
| ON | Conestoga | Woodworking Technician | 69% (2008/09) | 84% (2008/09) |
| ON | Conestoga | Woodworking Technology Co-op | 57% (2008/09) | 100% (2008/09) |
| ON | Conestoga | Woodworking Technology-Architectural Millwork (Co-op) | n/a | 100% (2008/09) |
| ON | Humber | Cabinet Making | 61% (2008/09) | 90% (2008/09) |
| ON | Humber | Industrial Woodworking Technician | 60% (2008/09) | 100% (2008/09) |
| ON | Sheridan | Crafts and Design - Furniture | 67% (2008/09) | 100% (2008/09) |
| ON | St. Clair College | Woodworking Technician | 69% (2006/07) | 100% (2006/07) |

Table 3-1: Graduation & Employment Outcomes by Training Program

| Province | Institution | Program Name | Graduation Rate | Employment Rate |
|-----------------|---|--|------------------------|------------------------|
| QC | Cegep de Sainte - Foy | Technologie de la transformation des produits forestiers | n/a | 100% (2007/2008) |
| QC | Ecole National du Meuble et de l'ebinisterie a Montreal | Cours en dessin assisté par ordinateur | n/a | 100% |
| QC | Ecole National du Meuble et de l'ebinisterie a Montreal | Ébénisterie | n/a | 100% |
| QC | Ecole National du Meuble et de l'ebinisterie a Montreal | Techniques du meuble et d'ébénisterie (collégial) -Option Menuiserie architecturale (fabrication sur mesure) | n/a | 100% |
| QC | Universite de Laval | Baccalauréat coopératif en génie du bois (B. Ing.) | n/a | 100% |

4 SURVEY FINDINGS & ANALYSIS

The following section examines the results of the survey of employers conducted in January and February 2010. Results are based on 204 responses as provided by advanced wood product manufacturers across Canada. A random sample of 2,336 wood products manufacturers was selected for the survey, representing 25%¹⁵ of the AWP manufacturing sector. The survey sample was provided by Scott's Directories and members of the Steering Committee overseeing the project.

With the exception of three Quebec respondents, manufacturers from Quebec were removed from the survey research. At the time of this study, Quebec manufacturers were involved in a similar research project sponsored by the Quebec Sector Council. To avoid possible duplication and overlap, the Steering Committee overseeing this project decided to remove Quebec manufacturers from the survey sample. As a result, 675 Quebec manufacturers were removed from the survey sample, resulting in a total sample of 1,661 survey candidates. To ensure national representation, the Quebec Sector Council has agreed to share the results of their research with the Wood Manufacturing Council, which will be incorporated into a subsequent final report at a later date.

Based on 204 responses, the survey would yield an overall response rate of 12.3% and a margin of error of $\pm 6.6\%$ at the 95% confidence level (i.e., 19 times out of 20). After accounting for invalid sample records (i.e., non-qualifiers, returns), the survey yielded a valid response of 15.5% and a margin of error of $\pm 6.3\%$, based on a final sample of 1,318 advanced wood products manufacturers. Data results have been aggregated and analyzed by the five (5) sub-sectors that comprise the advanced wood products manufacturing sector, and further examined across five (5) Canadian regions, including British Columbia, Prairie Provinces, Ontario, Quebec and Atlantic Canada.

4.1 Response Distribution

Employers from Ontario accounted for the largest percentage of responses (40%), followed by the Prairie Provinces (22%) and British Columbia (20%). In terms of primary business activity, furniture manufacturers accounted for the largest percentage of responses (37%), followed by cabinet manufacturers (26%). Based on the share of establishments that comprise each of the five sub-sectors (Section 2.2.1), the response would be under-representative of millwork and furniture manufacturers (Table 4-1).

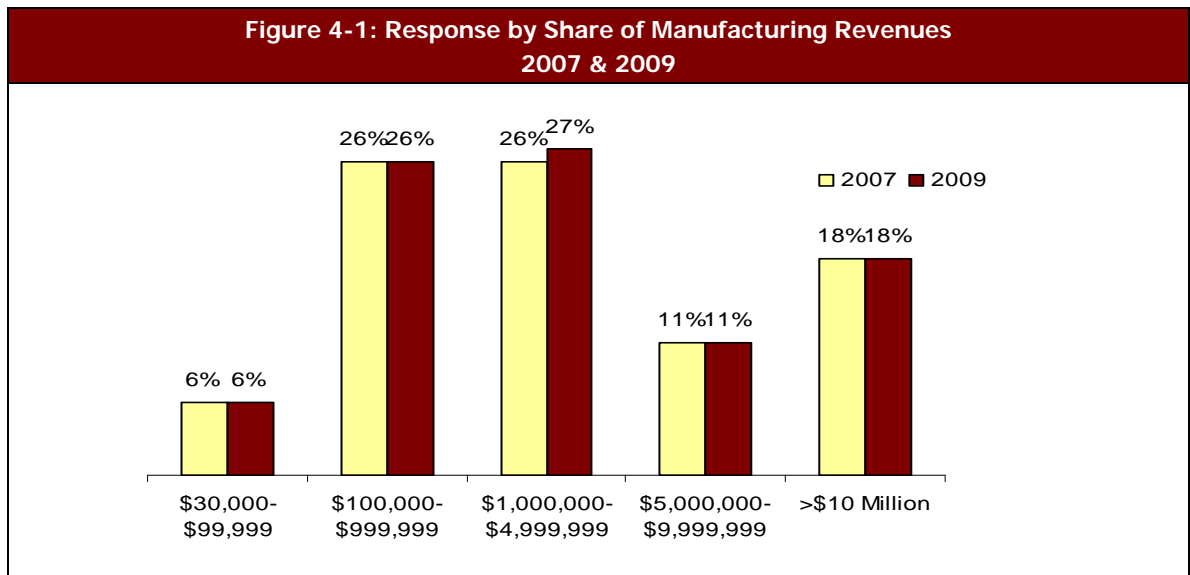
¹⁵ Based on 9,443 establishments (2008), as reported in the Annual Survey of Manufacturers & Loggers.

Table 4-1: Response Distribution by Region and Sub-sector

| Region | | | Furniture | | Cabinets | | Windows & Doors | | Millwork | | FBH & Components | |
|-----------------|------------|-------------|-----------|------------|-----------|------------|-----------------|------------|-----------|-----------|------------------|------------|
| Total | 204 | 100% | 76 | 37% | 53 | 26% | 22 | 11% | 14 | 7% | 39 | 19% |
| BC | 40 | 20% | 12 | 30% | 6 | 15% | 8 | 20% | 4 | 10% | 10 | 26% |
| Prairies | 44 | 22% | 14 | 32% | 18 | 41% | 4 | 9% | 1 | 2% | 7 | 18% |
| Ontario | 81 | 40% | 41 | 51% | 20 | 25% | 8 | 10% | 2 | 3% | 10 | 12% |
| Quebec | 3 | 2% | 1 | 33% | 0 | 0% | 0 | 0% | 1 | 33% | 1 | 33% |
| Atlantic | 36 | 17% | 8 | 22% | 9 | 25% | 2 | 6% | 6 | 17% | 11 | 28% |

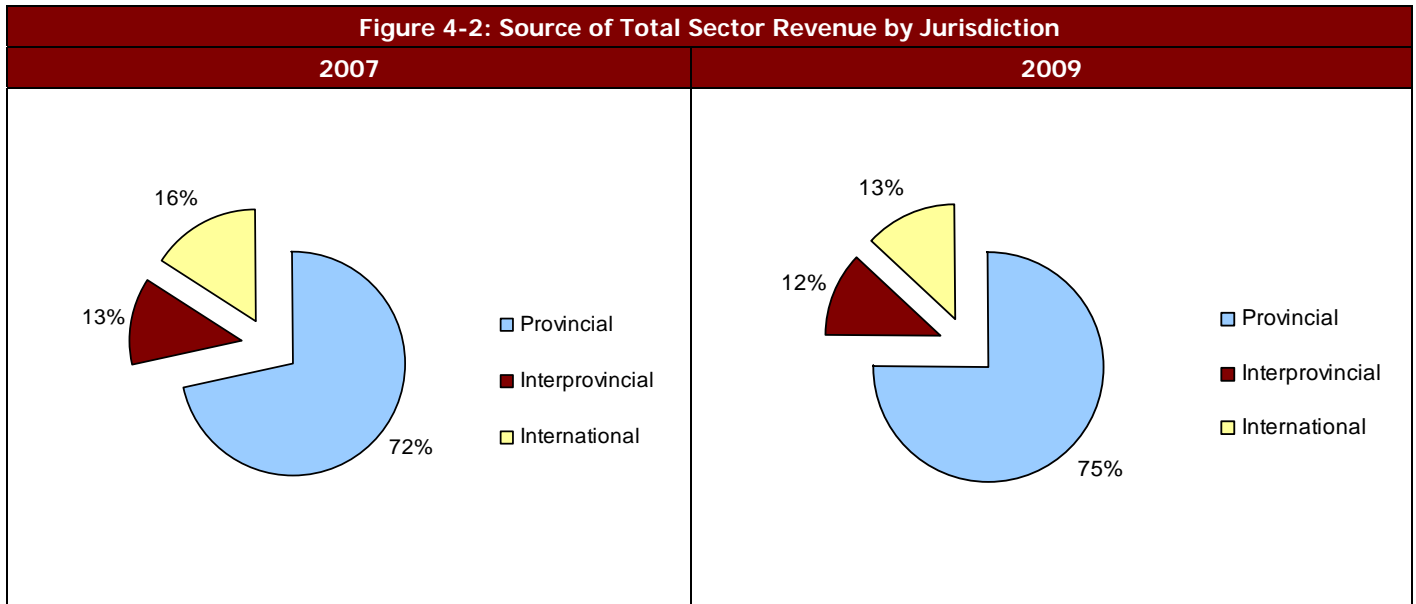
4.1.1 Response by Establishment Size – Manufacturing Revenues

Among the 177 employers who indicated their range of revenues generated in 2009, 18% were classified as large (i.e., revenues in excess of \$10 million), 64% were classified as either small or medium-sized establishments (i.e., revenues between \$100,000 and \$10 million), and 6% classified as micro-sized companies. The share of manufacturing revenues attributed within each range in 2009 was virtually identical to that in 2007. Although actual revenues will vary within each range, this result might suggest that AWP manufacturers have been somewhat successful over the last two years maintaining a similar range of revenues despite the economic turmoil beginning in 2008.



4.2 Impact of 2008 Economic Downturn on Revenue

As previously indicated in Section 2.2.4, revenues from Canadian exports of advanced wood products have declined significantly over the last 5 years, including a decline of 44% between 2007 and 2009. As a result, the share of revenues attributed to international export markets fell from 16% in 2007 to 13% in 2009 (Figure 4-2). These results are likely understated due to the exclusion of Quebec manufacturers.



4.3 Employment in the Advanced Wood Products Manufacturing Industry

4.3.1 Reported Workforce

Survey participants were asked to report the total number of full-time and part-time production and administrative workers employed in 2007 and 2010. As detailed in Table 4-2, total reported employment in 2007 was 10,180 workers, falling to 8,178 in 2010. The total reported workforce in 2007 represented about 9% of the sector's workforce (117,289), as identified in Statistics Canada's Annual Survey of Manufacturers & Loggers (see Section 2.2.2).

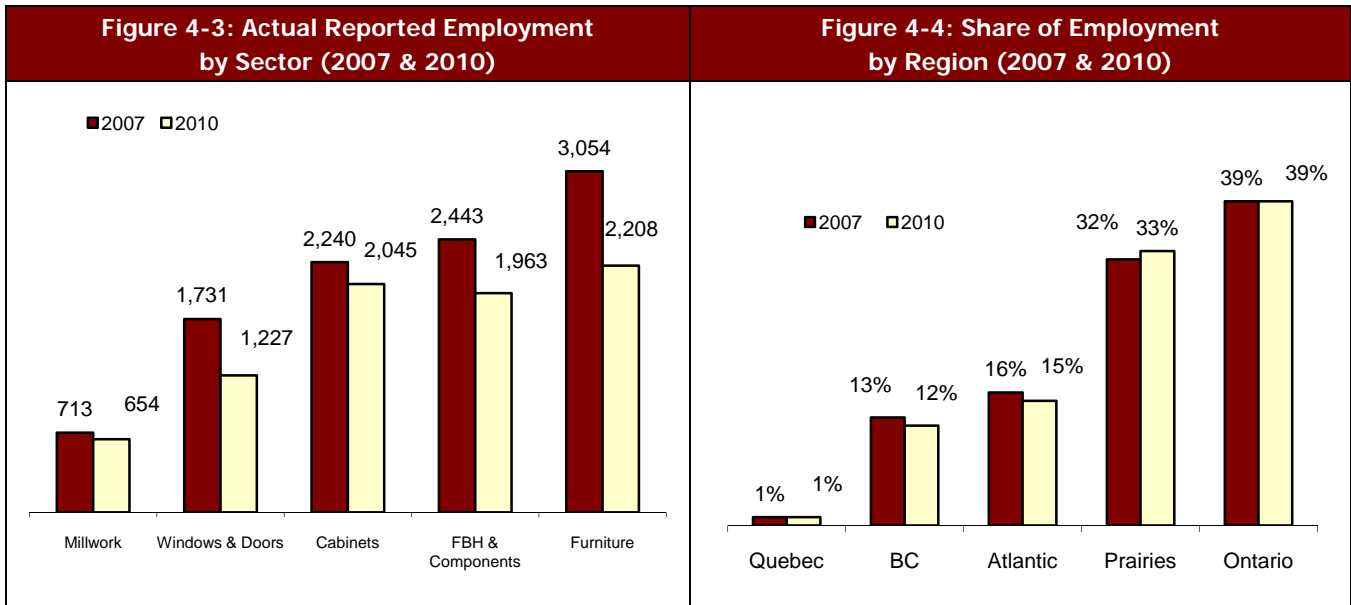
Table 4-2: Sector Workforce by Job Type (2007 & 2010)

| Job Category | 2007 | | | 2010 | | | % Change (actual) |
|------------------|--------------|------------|---------------|--------------|------------|--------------|----------------------|
| | Full-time | Part-time | Total | Full-time | Part-time | Total | |
| Administrative | | | | | | | |
| Windows & Doors | 4% | 2% | 3% | 3% | 1% | 3% | -20% |
| Millwork | 1% | 0% | 1% | 2% | 0% | 2% | -20% |
| FBH & Components | 6% | 36% | 8% | 7% | 45% | 9% | -10% |
| Cabinets | 6% | 11% | 7% | 7% | 4% | 7% | -20% |
| Furniture | 6% | 3% | 6% | 6% | 4% | 6% | -20% |
| Subtotal | 23% | 51% | 25% | 25% | 54% | 27% | -13% |
| Production | | | | | | | |
| Windows & Doors | 15% | 5% | 14% | 13% | 1% | 12% | -31% |
| Millwork | 6% | 0% | 6% | 7% | 10% | 7% | -6% |
| FBH & Components | 15% | 23% | 16% | 15% | 13% | 15% | -25% |
| Cabinets | 16% | 6% | 15% | 19% | 5% | 18% | -4% |
| Furniture | 25% | 14% | 24% | 21% | 17% | 21% | -30% |
| Subtotal | 77% | 49% | 75% | 75% | 46% | 73% | -22% |
| Totals | 9,466 | 714 | 10,180 | 7,615 | 563 | 8,178 | -20% |
| % Total | 93% | 7% | 100% | 93% | 7% | 100% | |

4.3.2 Impact on Employment

Workforce data was requested for both 2007 and 2010 to gain a sense of the impact of the economic downturn that began in 2008. For those who participated in the survey, the overall impact on employment has been severe, as total reported employment (full-time and part-time) fell 20% since 2007 (Figure 4-3). When applied across the sector, an overall decline of this magnitude would see total employment fall from 117,289 in 2007 to an estimated 94,183 workers in 2010.

The sector's workforce consists mainly of production workers whose share of employment fell from 75% in 2007 to 73% in 2010 – a net loss of more than 2,000 jobs. Job loss was highest among furniture manufacturers and manufacturers of windows and doors, and lowest among millwork manufacturers. It is interesting to note that a much larger share of administrative workers employed by cabinet and millwork manufacturers lost their jobs than did production workers in these sub-sectors.



The loss of employment between 2007 and 2010 was felt most strongly among furniture manufacturers, where reported employment fell by about 28%. Millwork and cabinet manufacturers were more successful maintaining their workforces over this period, with employment declining less than 10% in both sub-sectors. Regionally, the impact of the economic downturn on employment was spread equally across the country, as the share of reported employment remained virtually unchanged since 2007 (Figure 4-4).

4.4 Core Occupations

An important objective of this research was to examine in greater detail potential skill shortages and human resource challenges in core occupations. Committee members identified ten occupations that have either been difficult to fill, particularly during periods of robust economic activity, or challenging from an occupational development perspective. While skill shortages may not be a concern at the present time, a return to more traditional growth patterns will be challenged by the sector's ability to attract and develop new recruits for core occupations.

4.4.1 Employment in Core Occupations

As detailed in Table 4-3, total reported employment (full-time and part-time) in core occupations declined from 4,478 in 2007 to 3,891 in 2010 – a decrease of just over 13% (vs. a 20% decline in overall reported employment). Cabinet makers, assemblers and finishers accounted for about 70% of all job losses, whereas employment remained flat or increased among maintenance mechanics, industrial engineers, technologists & technicians, and operations managers, reflecting the value placed on these core occupations.

Table 4-3: Employment in Core Occupations (2007 & 2010)

| Core Occupation | 2007 | | | 2010 | | | Total Δ (Actual) |
|--|-------------------------------|-----------------------------|-------------------------------|-------------------------------|-----------------------------|-------------------------------|------------------|
| | Full-time | Part-time | Total | Full-time | Part-time | Total | |
| Operations Managers | 4% | 2% | 4% | 5% | 2% | 5% | 0.0% |
| Supervisors / Plant Management | 8% | 0% | 7% | 8% | 0.4% | 7% | -9.4% |
| Industrial Engineers, Mfg Technologists & Technicians | 2% | 6% | 2% | 2% | 8% | 3% | 1.0% |
| Industrial Designers, Drafting Technologists & Technicians | 5% | 2% | 5% | 5% | 3% | 5% | -4.6% |
| Woodworking Machine Operators | 25% | 6% | 24% | 25% | 15% | 25% | -9.6% |
| Cabinet Maker | 11% | 2% | 11% | 9% | 2% | 9% | -26.3% |
| Assemblers, Advanced Wood Products and Related | 22% | 45% | 23% | 20% | 23% | 21% | -24.0% |
| Finishers, Advanced Wood Products and Related | 14% | 7% | 13% | 13% | 7% | 12% | -19.4% |
| Industrial Electrician | 1% | 2% | 1% | 1% | 3% | 1% | 0.0% |
| Maintenance / Industrial Mechanic | 9% | 27% | 10% | 11% | 37% | 12% | 10.5% |
| Totals | 100% (4,205) | 100% (273) | 100% (4,478) | 100% (3,639) | 100% (252) | 100% (3,891) | -13.1% |

4.4.2 Demographic Characteristics of Core Workers

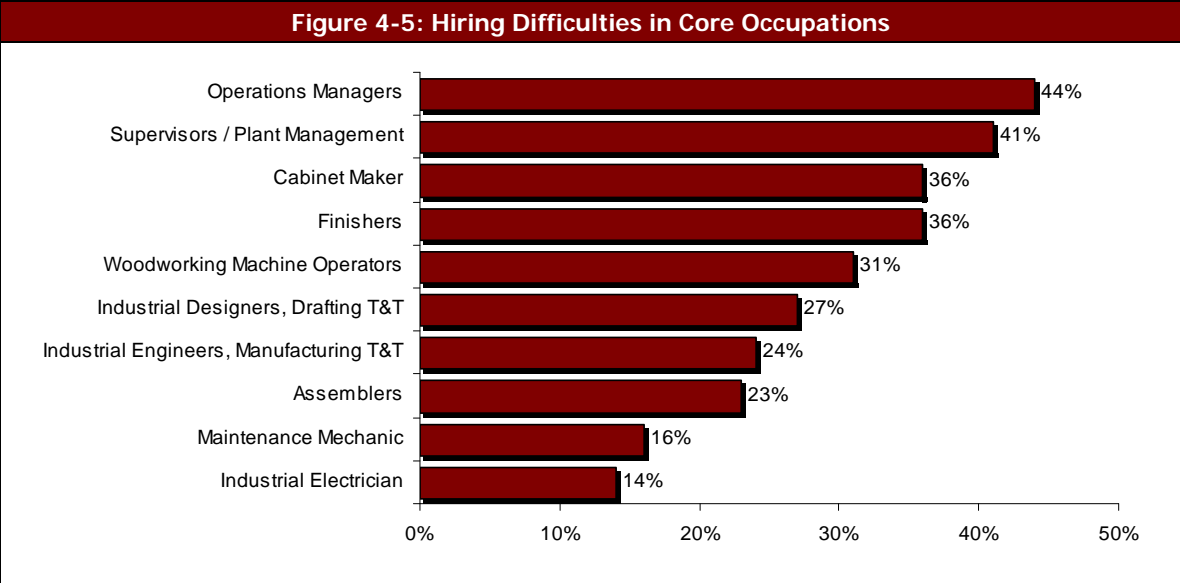
Male workers dominate core positions within the advanced wood products manufacturing sector, with 85% of all jobs occupied by men. Female workers have been somewhat successful finding employment in the category of industrial designers, drafting technologists & technicians (32%), as well as in the occupation of finisher (37%). More than half (56%) of all core workers are over the age of 40, including roughly two-thirds of operations managers (68%) and maintenance mechanics (66%). Worker transition planning will be necessary to ensure an adequate supply of workers in these occupations going forward. The majority of engineers and designers are under the age of 40, suggesting that the sector has been more successful recruiting younger members for these core occupations (Table 4-4).

Table 4-4: Demographic Characteristics of Workers in Core Occupations (2010)

| Core Occupation | <25 % | 25-39 % | 40-54 % | 55+ % | Male % | Female % |
|--|-----------|------------|------------|------------|------------|-------------|
| Operations Managers | 2% | 29% | 41% | 27% | 87% | 13% |
| Supervisors / Plant Management | 1% | 39% | 44% | 16% | 88% | 12% |
| Industrial Engineers, Mfg Technologists & Technicians | 5% | 47% | 37% | 10% | 88% | 12% |
| Industrial Designers, Drafting Technologists & Technicians | 13% | 45% | 31% | 11% | 68% | 32% |
| Woodworking Machine Operators | 12% | 39% | 33% | 15% | 89% | 11% |
| Cabinet Maker | 8% | 34% | 38% | 20% | 94% | 6% |
| Assemblers | 19% | 34% | 36% | 11% | 83% | 17% |
| Finishers | 5% | 34% | 45% | 17% | 63% | 37% |
| Industrial Electrician | 0% | 39% | 50% | 11% | 90% | 10% |
| Maintenance / Industrial Mechanic | 9% | 25% | 40% | 26% | 99% | 1% |
| Total | 7% | 36% | 40% | 16% | 85% | 15% |

4.4.3 Challenges Hiring Core Workers

Based on a 5-point scale, employers were asked to identify the level of difficulty (i.e., Difficult or Very Difficult) they face when recruiting workers for core occupations. As illustrated in Figure 4-5, operations managers (44%) and supervisors (41%) ranked as the most difficult positions to hire according to respondents, suggesting that employers are challenged in transitioning existing workers to more senior positions within the organization. More than one-third (36%) of employers also indicated difficulty hiring cabinet makers and semi-skilled finishers. While industrial designers and engineers were ranked close to the middle of the group, a large percentage of employers (56%) responded “Don’t Know” when asked about these core occupations (47% and 56%, respectively). This might indicate that a relatively smaller percentage of AWP manufacturers employ designers and engineers, given the size and sophistication of their operations.



- 52% of manufacturers located in the Prairie Provinces had difficulty hiring operations managers; window and door manufacturers had greater difficulty hiring operations managers (55%) and supervisors (50%) than other AWP manufacturers.
- 49% of cabinet manufacturers and 46% of furniture manufacturers indicated difficulty hiring cabinet makers, with the challenge highest among manufacturers in the Prairie Provinces (48%). Millwork manufacturers had greater difficulty hiring woodworking machine operators (50%) than other AWP manufacturers.
- Manufacturers in the Prairie Provinces had greater difficulty hiring finishers (50%) and assemblers (39%) than manufacturers in other regions; 55% of cabinet manufacturers had difficulty hiring finishers.
- Similar to responses pertaining to engineers and designers, 59% of respondents indicated “Don’t Know” when asked about industrial electricians, and 53% indicated “Don’t Know” when asked about maintenance mechanics. This would suggest that a smaller percentage of AWP manufacturers employ these workers (i.e., larger operators).

4.4.4 Job Vacancies and Projected Core Workforce (2014)

In spite of recent economic events, job vacancies currently exist across all core occupations for both full-time and part-time work. The current reported vacancy rate for core occupations was 13%, a particularly high rate given the current economic climate. This would suggest an acute shortage of workers in most occupations, which will likely intensify

as manufacturers return to full capacity. More likely, this result may signal the beginning of a return to more normal employment conditions and an expectation of re-hiring laid off workers.

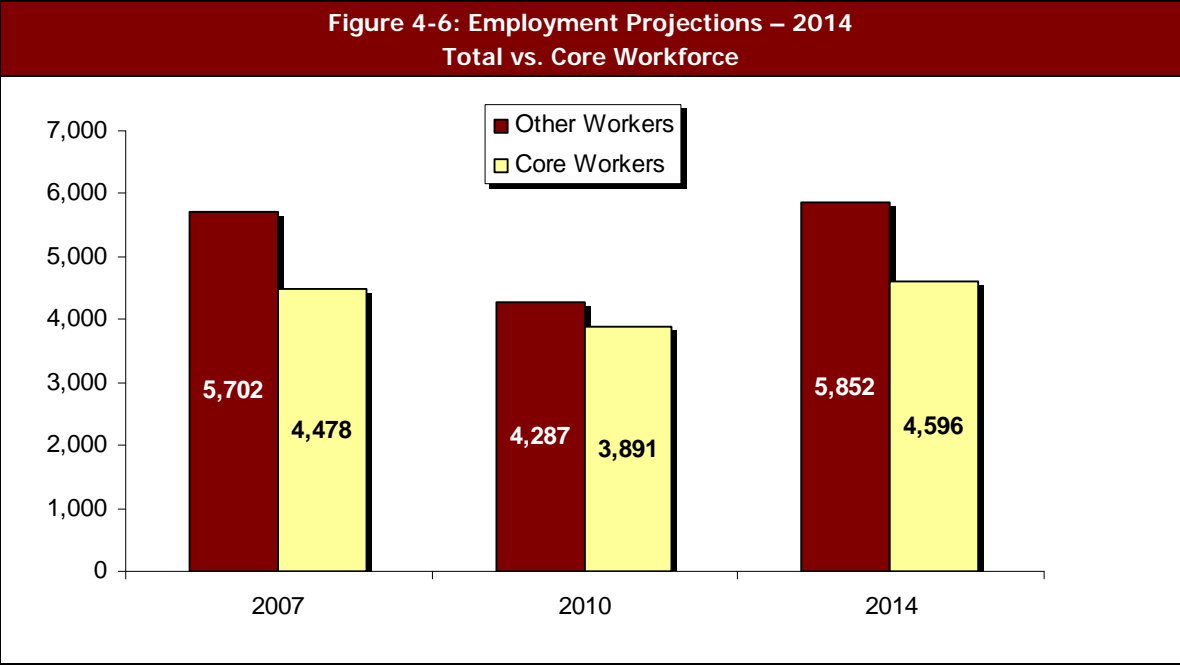
Overall, furniture manufacturers reported the highest number of current vacancies, followed by manufacturers of cabinet and counter tops. Employers reported that cabinet makers are in highest demand, with a current vacancy rate of 36%. This may seem counterintuitive as employment among cabinet makers declined furthest (26.3%) among all core occupations between 2007 and 2010 (see Table 4-3). While actual employment among engineers and designers is relatively small, vacancy rates are also high in these occupations, reflecting the ongoing difficulty recruiting workers for these positions.

In the longer term, manufacturers expect core employment to increase by 18% by 2014, which would be about 3% above 2007 employment levels. The demand for workers is projected to be highest for assemblers (45%), followed by operations managers (41%) and industrial electricians (35%). It is interesting to point out that demand for woodworking machine operators is projected to remain flat through 2014, perhaps reflecting the effects of more technology-intensive machinery operated by this category of worker.

Table 4-5: 2014 Projected Core Workforce

| Core Occupation | 2010 Workforce | 2010 Vacancies | Vacancy Rate | 2014 Workforce | % Change |
|--|----------------|----------------|--------------|----------------|------------|
| Operations Managers | 182 | 27 | 15% | 257 | 41% |
| Supervisors / Plant Management | 288 | 28 | 10% | 306 | 6% |
| Industrial Engineers, Mfg Technologists & Technicians | 99 | 18 | 18% | 99 | 0% |
| Industrial Designers, Drafting Technologists & Technicians | 207 | 42 | 20% | 261 | 26% |
| Woodworking Machine Operators | 957 | 87 | 9% | 964 | 1% |
| Cabinet Maker | 347 | 125 | 36% | 413 | 19% |
| Assemblers, Advanced Wood Products and Related | 800 | 130 | 16% | 1,162 | 45% |
| Finishers, Advanced Wood Products & Related | 483 | 37 | 8% | 531 | 10% |
| Industrial Electrician | 43 | 7 | 16% | 58 | 35% |
| Maintenance / Industrial Mechanic | 485 | 14 | 3% | 545 | 12% |
| Totals | 3,891 | 515 | 13% | 4,596 | 18% |

Employers are generally optimistic that employment will rebound to levels similar to that achieved prior to the economic downturn. Employment growth is expected to be higher in non-core occupations, as employers try to retain core workers even during slow economic times (Figure 4-6).



While employers are generally optimistic about the employment outlook for the sector, projections may be challenged by low levels of economic activity in related industries over the next five years. For example, TD Economics¹⁶ projects new housing starts in Canada to remain well below the peaks achieved in the mid-2000s¹⁷, averaging less than 160,000 starts per year through 2014. In addition, investment in non-residential structures is projected to grow on average 2.75% annually between 2011 and 2014, after having fallen an estimated 14% since 2009. Similarly in key US markets, business investment in non-residential structures is not projected to turn positive until 2012, while new housing starts are expected to remain well below historical annual averages through the same period.

4.5 Human Resource Management in the AWP Manufacturing Sector

Employers were asked to provide their opinion on a series of statements pertaining to the management and development of the sector workforce. The following analysis examines the level of agreement (Agree + Strongly Agree) among employers in the AWP manufacturing sector.

¹⁶ TD Economics, December 2009 Forecast
¹⁷ Housing starts peaked at 233,431 in 2004 (Statistics Canada)



Workers are willing to relocate to our region

- Having the ability to attract qualified workers to the region in which they operate is the basis of a sustainable business. However, less than one-in-five employers (18%) indicated that new workers were willing to relocate to their area of operation. This is a key consideration for manufacturers, as they are compelled to rely on the local population for their labour.
- Disagreement with this statement was strongest among employers in Atlantic Canada (56%) and lowest in British Columbia (23%). Manufacturers of cabinets and windows and doors were the least likely to agree with this statement (9%), though a large percentage of window and door manufacturers responded “Don’t Know” (41%). Opinion was divided among millwork manufacturers, where 36% of employers indicated workers were willing to relocate while 42% felt they were not.

Adequate supply of skilled labour in the region

- Less than one-quarter (24%) of employers indicated that the current supply of skilled labour in the region was adequate for their needs, while close to half (47%) either disagreed or strongly disagreed with this statement. Disagreement was strongest in the Prairie Provinces (57%) and Atlantic Canada (64%), and lowest in British Columbia (20%). Two-thirds (66%) of cabinet manufacturers indicated that the regional supply of skilled labour was inadequate, compared to less than one-third (32%) of window and door manufacturers.

New workers are aware of job opportunities

- Awareness of job opportunities in the AWP sector is considered low, with 40% of employers agreeing that new candidates are aware of opportunities. Note, however, that a large proportion (30%) of employers provided a “Neutral” response to this statement, suggesting that job awareness may not necessarily be a concern to them specifically. Job awareness was highest in Atlantic Canada (61%) and lowest in Ontario (32%). Furniture manufacturers (29%) were less likely to agree with this statement than other AWP manufacturers.

Wages and benefits are competitive with other industries

- Competitive wages and benefits are an essential element for attracting and retaining qualified workers. Two-in-five employers (40%) agreed that their wage and benefit packages were competitive with other industries, such as construction and other manufacturing. Agreement was highest in Atlantic Canada (58%) and the Prairies Province (50%), and lowest in of Ontario (28%) and British Columbia (33%). Millwork manufactures (57%) and factory-built housing & component manufacturers (56%) were more likely to agree that wages and benefits were competitive within their sub-sector.

Company provides training and upgrading opportunities

- Well over half (55%) of AWP manufacturers indicated that they provide training and upgrading opportunities for their workforce, while 27% of employers were “Neutral” in response. This result may be explained by the sector’s broad use of on-the-job training for new production workers, and “relevant” upgrading opportunities are not as widely available to the sector (see Section 3.4).

Worker turnover is not a problem

- At this time, more than 60% of employers agreed that worker turnover was not a problem for their operations. At least 62% of manufacturers in all regions agreed with this statement, except those located in the Prairie Provinces (50%). Millwork manufacturers expressed the strongest level of agreement (71%), compared to 55% among manufacturers of furniture. These results are likely influenced by current economic events and the lack of alternative job opportunities at this time.

Wages and benefits are competitive with other companies in the sector

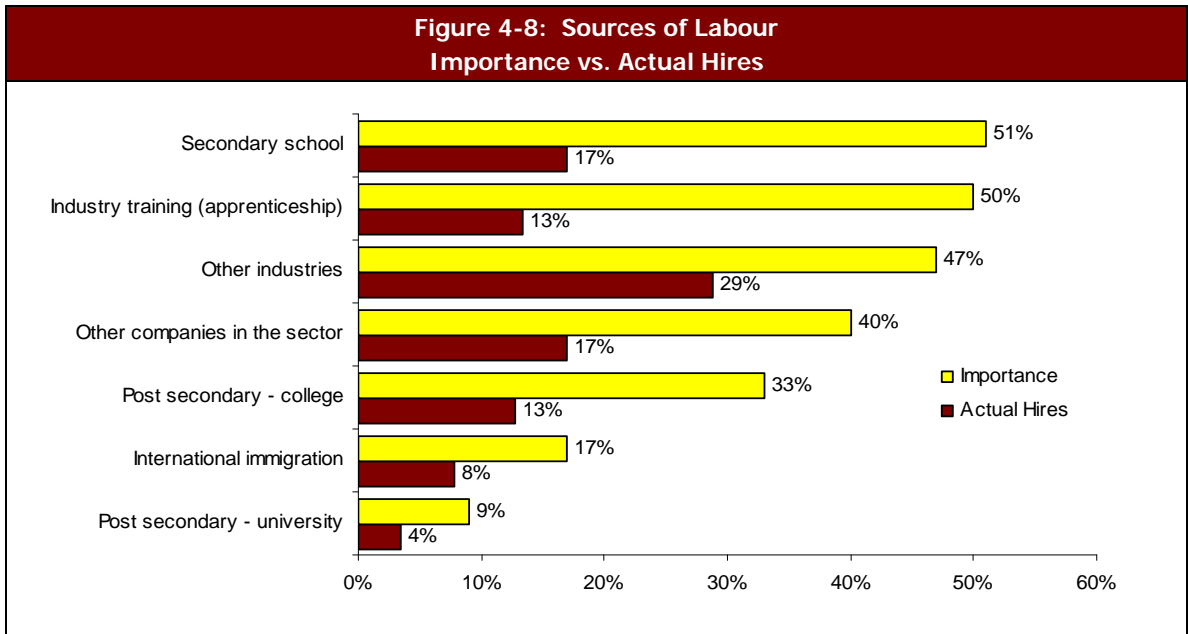
- Two-thirds (67%) of employers agreed that wages and benefits are competitive with other companies in the sector, including 80% of employers located in the Prairie Provinces and almost three-quarters (73%) of window and door manufacturers.

Company promotes from within

- More than eight-in-ten employers (82%) agreed that they attempt to promote workers from within the existing workforce. Manufacturers in British Columbia were the least likely to agree (70%) with this employment practice.

4.6 Sources of Labour – Importance vs. Actual Hires

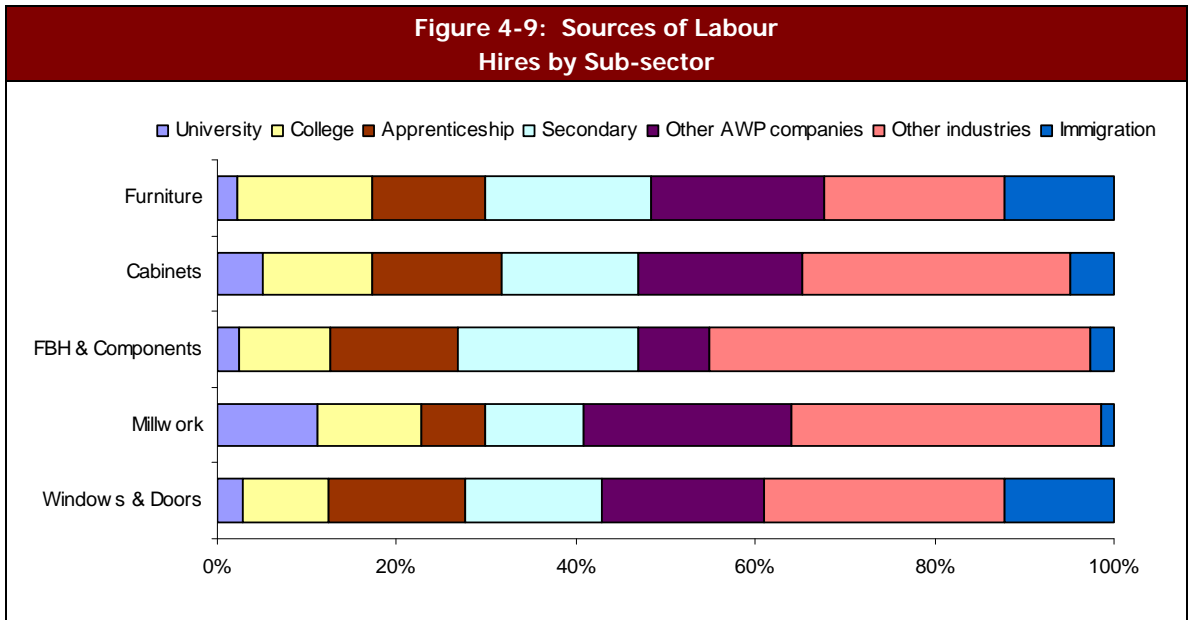
Employers were asked to indicate the level of importance (Important + Very Important) they place on various sources of labour, and to indicate the actual percentage of hires attributed to these sources (Figure 4-8). AWP manufacturers ranked the secondary school system, the industry training system and companies in other industries, such as construction and other manufacturers, the highest in terms of importance. However, in terms of actual hires, AWP manufacturers rely mostly on companies in other industries (29%) and companies from within the AWP manufacturing sector (17%). While this can be an effective employment strategy in the short term, it does not necessarily promote workforce stability in the longer term and challenges employers to fill vacancies during peak periods of economic activity. The gap between importance and actual hires was greatest with respect to the industry training (apprenticeship) system (i.e., 50% vs. 13%), suggesting that while the training system is considered valuable it is not that widely utilized by most employers.



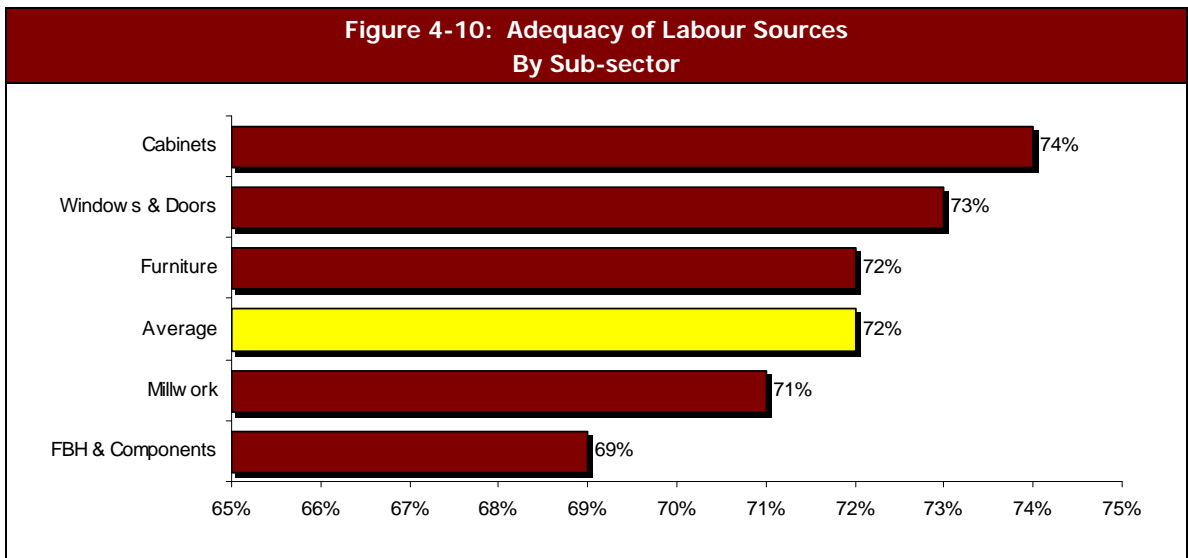
As highlighted in Figure 4-9 below, manufacturers rely to varying degrees on the different sources of labour depending on the sub-sector in which they operate. Furniture and window & door manufacturers typically rely more on international immigrants than other manufacturers; manufacturers of factory-built housing and components rely more on companies from other industries (e.g., construction); while millwork manufacturers indicated that they rely more on university students than other manufacturers, and tend not to rely as much on apprenticeship or the secondary school system. This result may however be influenced by the small sample of millwork manufacturers (n=14) and the exclusion of Quebec manufacturers from the survey research. Millwork manufacturers from Quebec account for about one-quarter of all Canadian millwork operations, including more than half with at least 100 employees¹⁸.

While post-secondary education and industry training may be widely available to the sector, as a source of labour it collectively accounts for just 30 percent of overall hires. Given workforce demographics and increasing complexities in the workplace, manufacturers will be challenged to meet future requirements without more active engagement in the post-secondary system. This may require new approaches to training within the sector, where smaller operators have more opportunity to train and upgrade workers, similar to larger employers. The onus of training on small individual employers is a risk to the future development of skilled workers in the sector.

¹⁸ Statistics Canada, Annual Survey of Manufacturers & Loggers

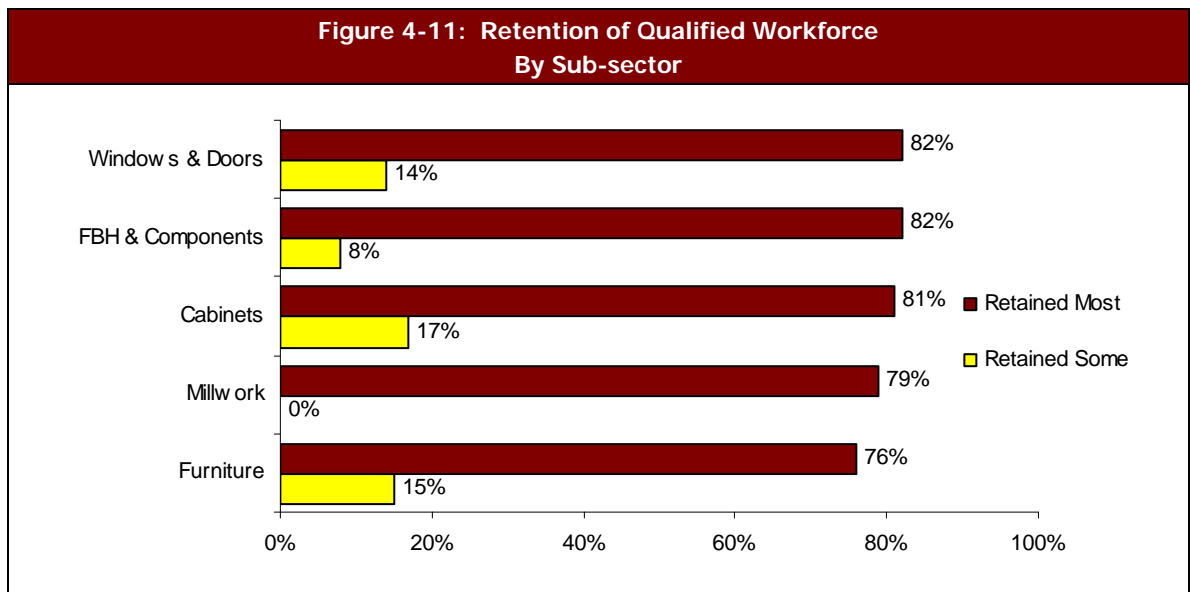


When employers were asked whether the identified sources of labour were adequately meeting their human resource requirements at this time, 72% responded positively – including 83% in British Columbia (Figure 4-10). However, among those who indicated that their needs were not being met, most emphasized that post-secondary graduates lacked the required knowledge and practical skills needed in the workplace. Other employers commented that the sector suffers from a persistent shortage of skilled labour and, in some cases, employers are compelled to outsource work they are unable to perform in-house.



4.7 Retention of Qualified Workers

Despite the slowdown in the economy, roughly eight-in-ten AWP manufacturers indicated that they were successful in retaining *most* of their qualified workforce, while a much smaller percentage indicated that they were successful in retaining *some* of their qualified workers since 2008. Only in millwork manufacturing did some employers indicate they were not successful retaining *any* of their qualified workers following recent economic events (Figure 4-11). In such cases, it is possible that some of these operations may have temporarily closed their business or shut down manufacturing due to the economy. When asked to elaborate on their response, some respondents who were not successful retaining qualified workers indicated that the economic slowdown caused layoffs, while others noted that they were unable to retain employees as a result of competition from other companies and industries.



Retention of qualified workers is a challenge for AWP manufacturers in both good and bad economic times. Employers understand the importance of retaining their qualified workers, as the cost of replacing them is significant. During good times, more employers now provide production bonuses and more flexible work scheduling as incentives. Even during slow periods, more employers are prepared to absorb the cost of retaining workers, as they will likely not be able to rehire them once they are gone. Overwhelmingly, competitive wages and benefits were cited as the critical best practice for retaining workers, followed by the availability of training and upgrading for career advancement. Given the sector's interdependent reliance on other AWP companies and industries for new hires, wages and benefits, at a minimum, must be competitive to help ensure that workers are not motivated to pursue alternative job opportunities.

4.8 Post-Secondary Education and Training

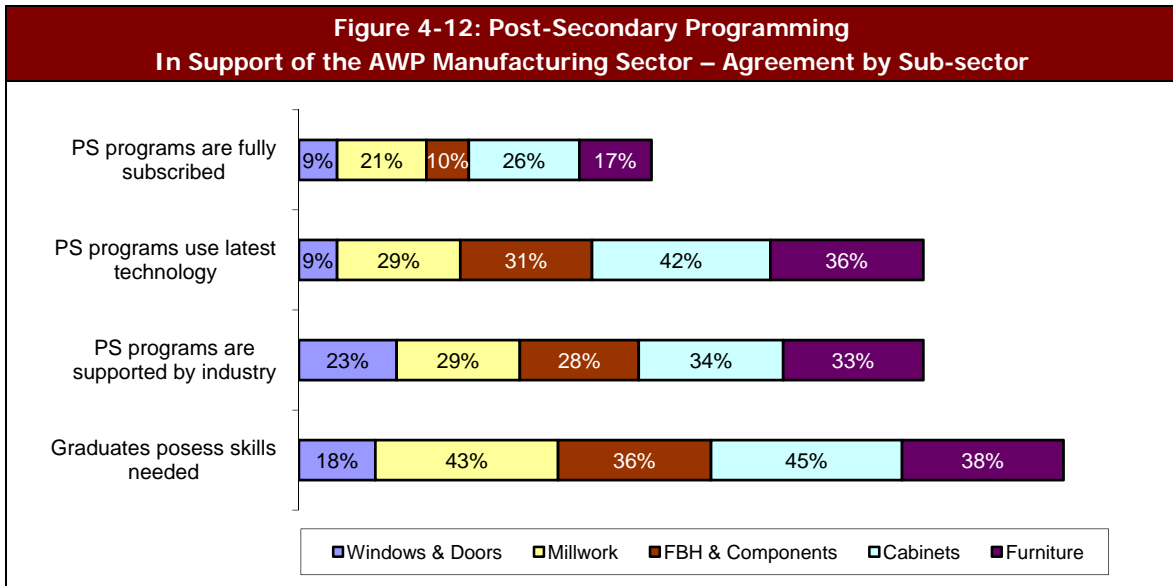
In recent years, the sector has undergone significant transformation as it attempts to remain competitive in a global economic environment. With the introduction of new equipment and technologies in the product development and production processes, post-secondary programming is taking on added importance for the purpose of developing graduates with the skills and knowledge to effectively function within the AWP sector. The following analysis examines the degree to which post-secondary education and training institutions are responding to the challenge of assisting the sector in meeting its human resource requirements.

4.8.1 Post-Secondary Programming

Respondents were asked to indicate their level of agreement (Agree + Strongly Agree) on various statements pertaining to post-secondary education and training in support of the advanced wood products manufacturing sector (Figure 4-12). The objective of the exercise was to gain a sense of the degree of coordination between the AWP sub-sectors and post-secondary institutions, as well as the utility of programming in the various geographic locations. It is important to point out that the results included a high incidence of “Don’t Know” and “Neutral” responses (i.e., at least a combined 53% for each statement), revealing a low level of coordination between the AWP sector and the post-secondary education and training system.

In general, manufacturers in western Canada reported higher levels of agreement than manufacturers in other regions. As to whether industry actively supports post-secondary programming (e.g., program advisory), agreement was markedly lower in Ontario (28%) and Atlantic Canada (17%) than in other regions. And when questioned on whether post-secondary graduates possess the skills needed by employers, the response ranged from a high of 53% in Atlantic Canada to a low of 30% in Ontario.

Despite these opinions, AWP manufacturers identified a number of post-secondary programs that they considered of high quality, including wood programs offered by Ontario’s Conestoga College, Alberta’s Southern/Northern Institutes of Technology, New Brunswick’s Collège Communautaire du Nouveau Brunswick, as well as the University of British Columbia and British Columbia Institute of Technology.



In examining the level of agreement across the five sub-sectors, results would suggest that the relationship between the post-secondary system and the AWP sector is strongest with cabinet manufacturers and weakest with window and door manufacturers. This is somewhat at odds with previous results suggesting that millwork manufacturers were most reliant on the post-secondary system for its labour. Regardless, the majority of manufacturers – most of which are small and medium-sized – are not directly involved in supporting post-secondary programming, and therefore a relatively small percentage agrees (~35%) that program graduates possess the skills needed by the sector.

4.8.2 Training and Upgrading

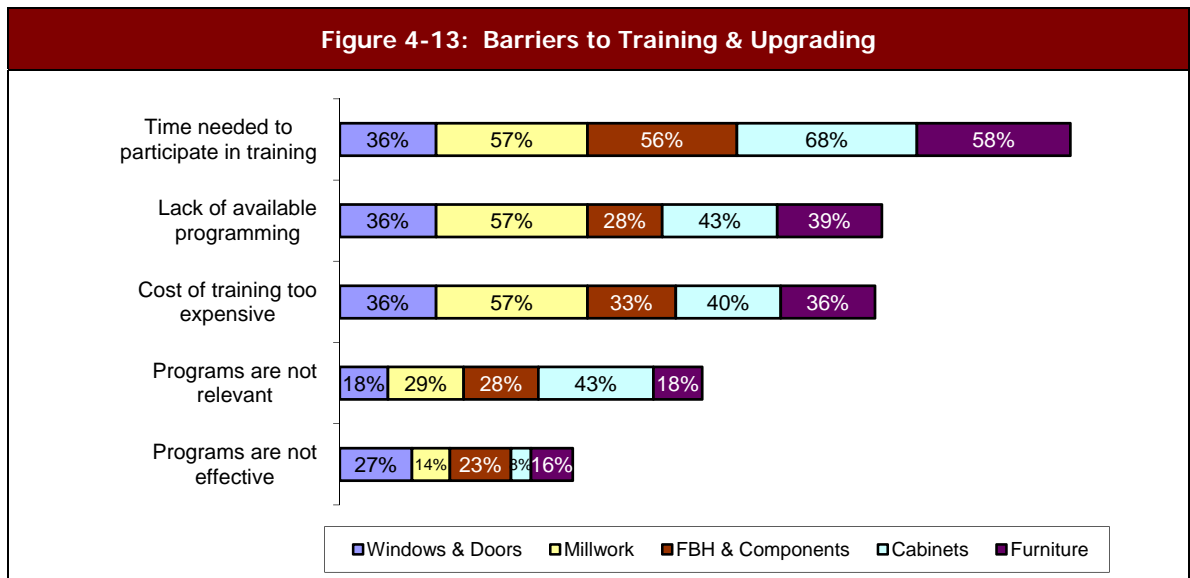
When employers were asked to indicate whether they provided in-house or industry-based training for their workforce, 70% responded positively, including 86% of window and door manufacturers and 50% of millwork manufacturers (Table 4-6). These results are more in line with previous results respecting post-secondary programming – that is, window and door manufacturers indicated that they rely more on in-house training programs and less on post-secondary programming than do other manufacturers. Conversely, millwork manufacturers are reportedly more engaged than other manufacturers in the post-secondary system, yet provide relatively less in-house training. Again, these results are likely influenced by the small sample of millwork manufacturers who participated in the survey.

Table 4-6: Provision of In-house Training & Upgrading By Sub-sector

| Furniture | Cabinets | Windows & Doors | Millwork | FBH & Components | AWP Sector |
|-----------|----------|-----------------|----------|------------------|------------|
| 67% | 70% | 86% | 50% | 74% | 70% |

In discussions with employers leading up to the survey, concerns were raised as to the availability and accessibility of industry training and upgrading programs for workers. Survey respondents were asked to indicate their level of agreement with a number of statements regarding identified barriers to training and upgrading. On a regional basis, manufacturers from Ontario and Atlantic Canada consistently attributed higher levels of agreement to all identified barriers than did manufacturers from other regions of the country.

As highlighted in Figure 4-13, it is little surprise that employers find it difficult affording workers the time needed to participate in industry training and/or upgrading programs. Apprentices, for example, typically require 6 to 8 weeks technical training each year, which often creates scheduling challenges for employers, particularly during peak times. Overall, the identified barriers facing the AWP sector were considered less severe among window and door manufacturers than other manufacturers, particularly millwork and cabinet manufacturers. Again, this might be expected given that window and door manufacturers are more engaged in in-house training and upgrading than are other manufacturers.

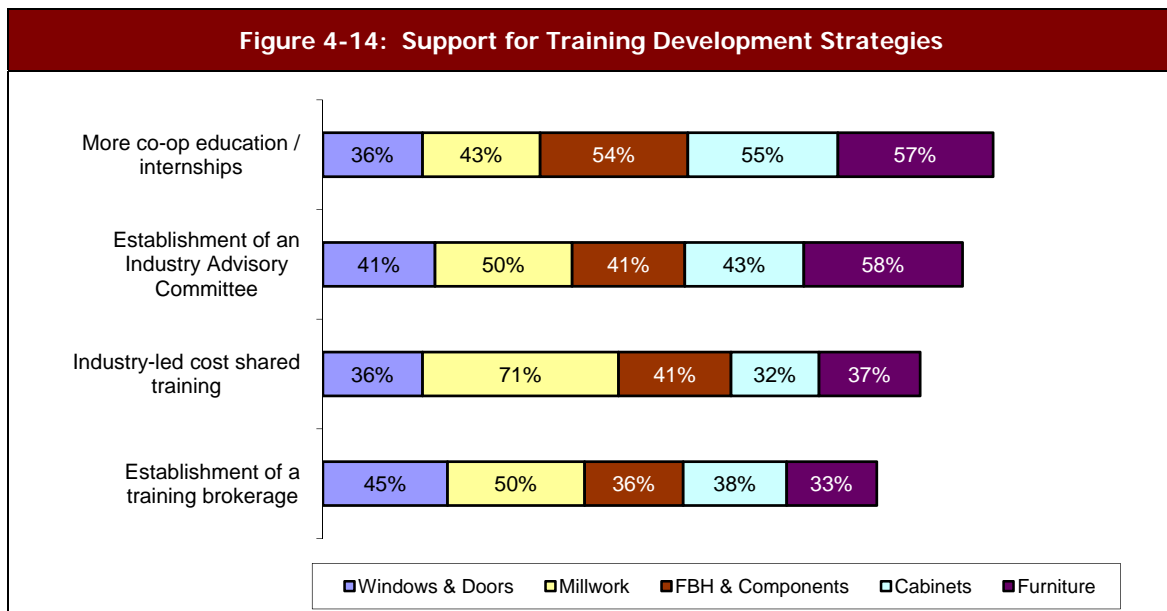


It may be somewhat surprising that employers did not rank program relevance and effectiveness higher among the list of identified barriers to training and upgrading. When asked to provide additional comment on the barriers, a number of employers did indicate

that available training and upgrading programs did not meet their requirements and, therefore, were considered ineffective. This result is, however, biased towards the large segment of employers who rely mostly on in-house training and do not actively participate in external training and upgrading programming.

4.9 Workforce Strategies for the AWP Manufacturing Sector

Survey respondents were presented with a number of possible training strategies to assist the sector in developing a sustainable workforce (Figure 4-14). On average, support for additional co-operative education and internship opportunities was highest (53%) among manufacturers, followed by the establishment of an Industry Advisory Committee (49%). Lower levels of support were attributed to the development of industry-led cost-shared training/upgrading programs (39%) and the concept of a training brokerage (37%). While support for the identified strategies is not overwhelming, the results are qualified by a significant percentage of “Don’t Know” responses (i.e., at least 20%) and low levels of resistance to any of the strategies. The lack of detail on the individual strategies is also cited as a contributing factor.



Respondents had the opportunity to identify additional education and training strategies in support of their workforce. Employers most often identified the need to increase government funding for training and upgrading and develop a stronger relationship between employers and trainers (e.g., Industry Advisory Committee). Employers also emphasized the importance of raising the sector’s profile in high schools and other wood-related industries to increase awareness and improve future labour prospects.

Respondents were asked to identify the industry's most critical human resource problem and possible strategies to support of their workforce. Apart from the need to increase government support for training and upgrading, there was no single strategy that was broadly advanced by respondents. Some of the concepts put forward included:

- Further promoting the trades as a career option, particularly in the secondary school system;
- Establishing broader training programming to enable workers to perform a variety of tasks, including those at entry level;
- Establishing stronger linkages between industry and trainers; and
- Providing increased support for the employment of foreign workers.

Finally, 78% of employers indicated that they did not have a human resource strategy to address workforce requirements through 2014. When asked to explain, several respondents noted that a human resource strategy was in the development process, with much of the focus on in-house training and upgrading.

5 CONCLUSION & RECOMMENDATIONS

Recent global economic events have brought into focus the heightened risks facing manufacturers of advanced wood products in Canada. Fierce competition from low-cost international producers, a rising Canadian dollar against its US counterpart, and declining market share in export markets are challenging the long-term sustainability of the sector in its current configuration. Given current conditions, economic growth for the sector could remain stagnant over the short and medium terms.

Over the last decade, Canadian manufacturers have undergone a significant transformation as the sector tries to compete in this increasingly globalized market. While investments in new technology and equipment have improved the productive capacity of manufacturers, these changes have also exposed the weaknesses associated with the sector's traditional employment and training models. Manufacturers today require a more highly skilled and educated workforce to meet the changing technology, as well as the ability to pursue more innovative methods of doing business. Similarly, employers of all sizes – but particularly small and medium-sized enterprises – must become more engaged in the post-secondary education and training system for the purpose of meeting future requirements.

Important to this objective is having in place a mechanism to formally organize the interests of manufacturers and to serve as a conduit to the education and training system. Similar efforts have been implemented in Europe where umbrella organizations have successfully coordinated related sectors in the forest and wood industries (i.e., value chains) for both economic and human resource development purposes. As a result manufacturing operations have become more integrated across sectors and consumer markets more stable for smaller operators. At the same time, training programs have been specifically designed to reflect the changing needs of industry.

While Canadian manufacturers have experienced success in improving productivity over the last decade, these achievements are potentially undermined without the development of more relevant training programs for new and existing workers. Throughout the research, employers frequently identified a perceived lack of available training and development programs, and the relevance of existing programs for current and future requirements. In part, this is owing to a lack of awareness of training and upgrading opportunities among small and medium-sized employers and their traditional reliance on in-house training. Nevertheless, fully transforming the sector from a lower skilled and less-educated workforce to a more dynamic and innovative workforce requires a commensurate investment in training to maximize the benefit.

In this context, the following recommendations are put forward for the consideration by the Steering Committee and include both long-term (1 – 2 years) and short-term (0-1 year) recommendations.

Long-Term:

1. Develop a Sector Strategy that Lays the Foundation for Long-Term Industry Growth. In order to continue the sector's transformation into a more dynamic, innovative and global leader in advanced wood product manufacturing, it is recommended that industry leaders put in place a sector strategy that outlines the economic, regulatory and organizational requirements needed to sustain the sector going forward. Similar to the European experience, this initiative would involve establishing formal partnerships throughout the "value chain" (i.e., forestry, wood, building design), to promote efficiencies in the utilization of industry resources and the marketing of advanced wood products domestically and internationally. The three sector councils responsible for wood manufacturing, forestry and perhaps construction could coordinate this initiative, with leadership from industry representatives.

Short Term:

2. Establish an Industry Advisory Committee Responsible for Education, Training Development and Communication. Under the direction of the Wood Manufacturing Council, establish an Industry Advisory Committee (IAC) with representation from among all five advanced wood product manufacturing sub-sectors and representatives of Canada's post-secondary education and training institutions that provide programming in support of the AWP manufacturing sector. The IAC would be responsible for sharing information with respect to best practices in AWP training and education programming, strategic program planning, including occupational development, standards and certification, and the promotion of education and training in support of wood product manufacturers across Canada. Central to this mandate would be the need to address information/knowledge gaps that currently exist primarily among small and medium-sized enterprises with respect to education, training and upgrading opportunities. The IAC would work closely with local trainers and educators to raise awareness of the opportunities available to manufacturers, as well as establish more effective outreach services with employers on a permanent basis.
3. Expand Recruitment Efforts to Attract Younger and Qualified Workers. Under the direction of the Wood Manufacturing Council, expand efforts to help ensure an adequate supply of younger workers capable of developing within the business. This would

involve raising awareness of the sector as a viable career option at both the secondary and post-secondary levels. Introduce more effective screening techniques that focus on aptitude and ability to develop new skills. Expand the use of secondary programs, such as WoodLINKS, as both a practical (i.e., experiential) and informative pre-employment program for new recruits. Demonstrate to new applicants the potential for career development (“paths”) and training opportunities for those who are motivated to progress in the sector. Eliminate any perception that entry-level work in this sector is temporary or simply a stepping-stone to employment with other companies or industries. When hiring new workers, provide cross training in a range of positions to provide workers with a broader understanding of the operation.

4. Improve Retention of Qualified Workers. Employers recognize the value of retaining qualified staff even during periods of slow economic activity. To help ensure long-term commitment, provide qualified workers with opportunities to build technical and managerial skill through training and upgrading. Continue efforts to “promote from within” to minimize turnover and to help replace aging workers (i.e., succession planning). Co-ordinate with the Industry Advisory Committee (per Recommendation 2.) or other body to pursue the most cost-effective training and upgrading options that promote the retention and development of core workers.
5. Promote Training Certification with Suppliers of New Technology. The full productive capacity of new equipment and technology can be undermined if workers do not receive adequate training and support to operate the equipment. Equipment used by manufacturers is now more technology-intensive (e.g., computer numeric controlled) and requires a more complex level of skill and knowledge to operate. Many employers are also becoming more reliant on workers capable of designing wood products using advanced software programs. To help promote training and career development, establish certification programs in partnership with suppliers of new equipment and technology that formally recognize completion of industry training and upgrading programs. This certification can be “portable” and would allow employers to recognize previous skills/experience gained through such training.

APPENDIX A COMMITTEE MEMBERS

Labour Market Update of the National HR Sector Study Steering Committee

Adam Hofmann, President, Bogdon & Gross Furniture Co.

Blair Tullis, Tullis & Associates Ltd., Project Manager

Jessica Langedahl, HR Generalist, Superior Cabinets

Ken Dreger, HR Manager, Superior Cabinets

Michael McClements, Associate Vice President, Technologies, Conestoga College
Institute of Technology

Sid Watts, Executive Director, Atlantic Wood

Tony Gram, President, Dynamic Store Fixtures

APPENDIX B DATA SOURCES

Data Sources

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APPENDIX C
SURVEY INSTRUMENT & INTERVIEW GUIDE



HR Sector Study

EMPLOYER SURVEY ***Advanced Wood Products Manufacturing Sector***

As an employer within Canada's Advanced Wood Products Manufacturing Sector, you have been selected to participate in this national study. Thank you for taking the time to complete this survey.

- Research Purpose** The purpose of this research is to gather industry information to help build a skilled and sustainable workforce for Canada's Advanced Wood Products Manufacturing Sector.
- Research Objectives** Objectives of the survey are to:
- Quantify the number of workers and job vacancies currently in your organization;
 - Forecast the number of production workers your company expects to need by 2014;
 - Identify current challenges recruiting and retaining qualified workers within your sector;
 - Identify current gaps with respect to training and upgrading in support of the sector.
- Sponsor** The project is sponsored by the Wood Manufacturing Council (WMC), with support from Human Resources & Skills Development Canada.
- Confidentiality** All information will be maintained in strict accordance with federal and provincial privacy legislation. Results will be reported at the aggregate level only.
- How to Respond** An official who can accurately provide human resource information on your organization's workforce should complete this survey.
- By mail using the enclosed postage-paid envelope
 - By fax to R.A. Malatest & Associates Ltd. 1-888.384.2774 (toll free)
 - By phone 1-877-386-1824 (toll free)
 - Online by visiting the following website www.wmc-hr.malatest.net and entering the access code provided in the cover letter
- Questions?** Contact:
- Patrick McDonough, Research Consultant, R.A. Malatest & Associates Ltd., at 1-800-665-5848 or p.mcdonough@malatest.com
 - Blair Tullis, Project Manager, Tullis & Associates at 1-647-802-2290 or blair@tullisassociates.ca
- Donation** For each completed survey, R.A. Malatest & Associates will donate \$2.50 to the **Canadian Red Cross Haiti Earthquake Relief Fund**.

You are kindly asked to return completed surveys by February 26, 2010



HR Sector Study

Select Occupations in the Advanced Wood Products Manufacturing Sector

Industry stakeholders have identified the following occupations for purposes of this survey. Employers cite the challenge of hiring qualified workers for these select positions, particularly during periods of robust manufacturing activity. These occupations are not intended to represent the full range of production occupations within an advanced wood products manufacturing operation.

| SELECT OCCUPATIONAL DEFINITIONS | |
|--|--|
| Position Title | Description |
| Operations Managers (Manufacturing) | Operations managers plan, organize, direct, control and evaluate the operations of a manufacturing establishment or of a production department within a manufacturing establishment. They are employed by manufacturing companies. |
| Supervisors (Plant Management) | This unit group includes supervisors, not elsewhere classified, who supervise and co-ordinate the activities of workers who assemble, fabricate and inspect a variety of products, such as jewellery, clocks and watches, millwork, sporting goods, toys and other miscellaneous products. They are employed in a wide variety of manufacturing companies. |
| Industrial Engineering, Manufacturing Technologists & Technicians | Industrial engineering and manufacturing technologists and technicians may work independently or provide technical support and services in the development of production methods, facilities and systems, and the planning, estimating, measuring and scheduling of work. |
| Industrial Designers, Drafting Technologists & Technicians (CAD/CAM) | Industrial designers conceptualize and produce designs for manufactured products. Drafting technologists and technicians prepare engineering designs, drawings and related technical information, in multidisciplinary engineering teams or in support of engineers, architects or industrial designers, or they may work independently. |
| Woodworking Machine Operators | Woodworking machine operators set up, program and operate one or more woodworking machines to fabricate or repair wooden parts for furniture, fixtures or other wood products. They are employed in furniture, fixture and other wood product manufacturing establishments. |
| Cabinet Maker | Cabinetmakers use a variety of woods and laminates to construct and repair wooden cabinets, furniture, fixtures and related products. They are employed by furniture manufacturing or repair companies, construction companies and cabinetmaking contractors. |
| Assemblers, Advanced Wood Products and Related | This unit group includes workers who assemble parts to form subassemblies or complete articles of furniture, fixtures and other wood products. Inspectors in this unit group inspect subassemblies and finished products to ensure product quality. |
| Finishers, Advanced Wood Products and Related | Wood finishers finish new wood or metal furniture or other wood products to specified colour and finish. They are employed in wood manufacturing plants, retail furniture stores or refinishing and repair shops. |
| Industrial Electrician | Industrial electricians install, maintain, test, troubleshoot and repair industrial electrical equipment and associated electrical and electronic controls. They are employed by electrical contractors and maintenance departments of factories, plants, mines, shipyards and other industrial establishments. |
| Maintenance / Industrial Mechanic | Maintenance/Industrial mechanics install, maintain, troubleshoot and repair stationary industrial machinery and mechanical equipment. Industrial mechanics are employed in manufacturing plants, utilities and other industrial establishments. |

WoodLINKS®

Sponsored by the WMC, WoodLINKS is a wood products manufacturing education and certification program offered in various high schools across Canada. The goal of WoodLINKS is to help recruit and prepare high school students for entry-level work in the advanced wood products manufacturing sector and/or entry into a wood-related college or university program.



HR Sector Study

A: COMPANY BACKGROUND (est. 5 minutes)

A1. In which region of Canada is your company located (head office)?

- BC & Yukon
- Western Canada (Alberta, Saskatchewan, Manitoba, Northwest Territories)
- Ontario
- Quebec
- Atlantic Canada (New Brunswick, Nova Scotia, Newfoundland & Labrador, PEI)

A2. Please identify your primary and secondary (if applicable) business activity?

| Business Activity | Primary | Secondary |
|---|--------------------------|--------------------------|
| Wood Windows and Doors | <input type="checkbox"/> | <input type="checkbox"/> |
| Other Millwork (eg, flooring, mouldings, components, etc.) | <input type="checkbox"/> | <input type="checkbox"/> |
| Modular/Mobile and Panelized Home Manufacturing | <input type="checkbox"/> | <input type="checkbox"/> |
| Prefabricated Wood Building Manufacturing | <input type="checkbox"/> | <input type="checkbox"/> |
| Other Miscellaneous Wood Products | <input type="checkbox"/> | <input type="checkbox"/> |
| Wood Kitchen Cabinets and Counter Tops | <input type="checkbox"/> | <input type="checkbox"/> |
| Upholstered Wood Household Furniture | <input type="checkbox"/> | <input type="checkbox"/> |
| Non-upholstered Wood Household Furniture | <input type="checkbox"/> | <input type="checkbox"/> |
| Other Wood Household Furniture Manufacturing | <input type="checkbox"/> | <input type="checkbox"/> |
| Institutional Furniture | <input type="checkbox"/> | <input type="checkbox"/> |
| Wood Office Furniture | <input type="checkbox"/> | <input type="checkbox"/> |
| Custom Architectural Woodwork, Millwork, and Fixtures | <input type="checkbox"/> | <input type="checkbox"/> |
| Wood Office Furniture, including Custom Architectural Woodwork, Manufacturing | <input type="checkbox"/> | <input type="checkbox"/> |
| Showcases, Partitions, Shelving, and Lockers | <input type="checkbox"/> | <input type="checkbox"/> |

A3. Please indicate whether your company's production workforce operates under a collective bargaining agreement.

- Yes
- No

A4. What is the proportion of your company's revenues attributed to the following markets in 2007 and 2009 (totals should add to 100%)?

| | Revenue 2007 | | Revenue 2009 |
|-----------------|--------------|-----------------|--------------|
| Provincial | _____ % | Provincial | _____ % |
| Interprovincial | _____ % | Interprovincial | _____ % |
| International | _____ % | International | _____ % |



HR Sector Study

A5. Please indicate the total value of manufacturing revenues generated by your operation in 2007 and 2009.

| | \$30,000 - \$99,999 | \$100,000 - \$999,999 | \$1,000,000 - \$4,999,999 | \$5,000,000 - \$9,999,999 | > \$10,000,000 | Don't Know / No Response |
|-------------|-----------------------|-----------------------|---------------------------|---------------------------|-----------------------|--------------------------|
| 2007 | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2009 | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

A8. Please indicate your position/title with the company.

- Owner / President
- Manager, Human Resources
- Plant Manager
- Supervisor
- Other (please specify _____)

B: RECRUITMENT & RETENTION OF SKILLED WORKERS (est. 10 minutes)

This section of the survey is interested in your company's ability to hire workers in select occupations and to identify some of the challenges you face in recruiting and retaining skilled workers.

B1. Industry stakeholders have identified the following select occupations as persistently difficult positions to fill, particularly during periods of robust manufacturing activity. Based on a scale of 1 to 5 (where 1 is Not at all Difficult and 5 is Very Difficult), please indicate the level of difficulty your company typically faces when hiring workers in the following occupations (please circle your answers; DK = Don't know).

| Select Occupation | Not at all Difficult.....Very Difficult | | | | | Don't Know |
|--|---|---|---|---|---|------------|
| Operations Managers (Manufacturing) | 1 | 2 | 3 | 4 | 5 | DK |
| Supervisors (Plant Management) | 1 | 2 | 3 | 4 | 5 | DK |
| Industrial Engineering, Manufacturing Technologists & Technicians | 1 | 2 | 3 | 4 | 5 | DK |
| Industrial Designers, Drafting Technologists & Technicians (CAD/CAM) | 1 | 2 | 3 | 4 | 5 | DK |
| Woodworking Machine Operators | 1 | 2 | 3 | 4 | 5 | DK |
| Cabinet Maker | 1 | 2 | 3 | 4 | 5 | DK |
| Assemblers, Advanced Wood Products and Related | 1 | 2 | 3 | 4 | 5 | DK |
| Finishers, Advanced Wood Products and Related | 1 | 2 | 3 | 4 | 5 | DK |
| Industrial Electrician | 1 | 2 | 3 | 4 | 5 | DK |
| Maintenance / Industrial Mechanic | 1 | 2 | 3 | 4 | 5 | DK |

B2. Based on a scale of 1 to 5 (where 1 is Strongly Disagree and 5 is Strongly Agree), please indicate your level of agreement with the following statements (please circle your answers).

| Statement | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree | Don't Know |
|---|-------------------|----------|---------|-------|----------------|------------|
| Currently, there is an adequate supply of skilled workers in the region in which we operate | 1 | 2 | 3 | 4 | 5 | DK |



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| Statement | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree | Don't Know |
|--|-------------------|----------|---------|-------|----------------|------------|
| Potential new workers are aware of employment opportunities at our company | 1 | 2 | 3 | 4 | 5 | DK |
| Qualified workers are willing to relocate to the region in which we operate | 1 | 2 | 3 | 4 | 5 | DK |
| Our company's wage and benefit package is competitive with other companies in the industry | 1 | 2 | 3 | 4 | 5 | DK |
| Our company's wage and benefit package is competitive with companies in other industries (eg, construction, other manufacturing) | 1 | 2 | 3 | 4 | 5 | DK |
| Our company provides training, upgrading and career development opportunities for its workforce | 1 | 2 | 3 | 4 | 5 | DK |
| Our company promotes from within wherever possible | 1 | 2 | 3 | 4 | 5 | DK |
| Worker turnover is typically not a problem for our company | 1 | 2 | 3 | 4 | 5 | DK |

B3. Based on a scale of 1 to 5 (where 1 is Not at all Important and 5 is Very Important), please indicate the level of importance attributed to the following sources of new skilled workers for your company (please circle your answers; DK = Don't know).

| Source of Labour | Not at all Important.....Very Important | | | | | Don't Know |
|--|---|---|---|---|---|------------|
| Post secondary education system – University | 1 | 2 | 3 | 4 | 5 | DK |
| Post secondary education system – Colleges & Institutes | 1 | 2 | 3 | 4 | 5 | DK |
| Industry training (apprenticeship) system | 1 | 2 | 3 | 4 | 5 | DK |
| Secondary school system (eg, WoodLINKS, Youth Apprenticeship) | 1 | 2 | 3 | 4 | 5 | DK |
| Other companies in the advanced wood products manufacturing sector | 1 | 2 | 3 | 4 | 5 | DK |
| Other industries (please specify _____) | 1 | 2 | 3 | 4 | 5 | DK |
| International Immigration | 1 | 2 | 3 | 4 | 5 | DK |

B4. What percentage (%) of new hires at your company are attributed to the following sources of new skilled workers?

| Source of Labour | % |
|--|--------|
| Post secondary education system – University | _____% |
| Post secondary education system – Colleges & Institutes | _____% |
| Industry training (apprenticeship) system | _____% |
| Secondary school system (eg, WoodLINKS, Youth Apprenticeship) | _____% |
| Other companies in the advanced wood products manufacturing sector | _____% |
| Other industries (please specify _____) | _____% |
| International Immigration | _____% |



HR Sector Study

B5. Taken together, do these sources of skilled labour adequately meet your company's needs?

- Yes
- No – Please explain

B6. Given the recent downturn in the economy, has your company been successful maintaining its qualified workforce during this period?

- Yes, we have retained most of our qualified workforce
- Yes, we have retained some of our qualified workforce
- No, we have lost most of our qualified workforce. Please explain.

- Don't know / No Response

B7. Please describe some of your company's current best practices with respect to recruitment and retention of skilled workers over the last 2 years.

| Recruitment | Retention |
|-------------|-----------|
| <hr/> | <hr/> |
| <hr/> | <hr/> |
| <hr/> | <hr/> |

C: EDUCATION & TRAINING PROGRAMMING (est. 10 minutes)

This section of the survey is interested in current education and training programs – both post secondary and industry-based – in support of the advanced wood products manufacturing sector.

C1. Please identify any post-secondary education program(s) that you believe are particularly effective at educating/training students with the skills and knowledge needed to successfully work in the advanced wood products manufacturing sector.

Note: Program strengths are those characteristics that industry finds particularly beneficial when considering new hires (e.g., uses latest technology, provides co-op option, highly qualified trainers).

| Post Secondary Education & Training Programs | | |
|--|--|--|
| Program Name <i>(please specify)</i> | Institution <i>(please specify)</i> | Program Strengths <i>(please specify)</i> |
| 1. <hr/> | <hr/> | <hr/> |
| 2. <hr/> | <hr/> | <hr/> |
| 3. <hr/> | <hr/> | <hr/> |



HR Sector Study

C2. Based on a scale of 1 to 5 (where 1 is Strongly Disagree and 5 is Strongly Agree), please indicate your level of agreement with the following statements (please circle your answers).

| Statement | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree | Don't Know |
|--|-------------------|----------|---------|-------|----------------|------------|
| Post secondary programs (that I am familiar with) in support of the advanced wood products manufacturing sector are typically fully subscribed each year | 1 | 2 | 3 | 4 | 5 | DK |
| Post secondary programs (that I am familiar with) in support of the advanced wood products manufacturing sector use the latest technology and industry equipment | 1 | 2 | 3 | 4 | 5 | DK |
| Post secondary programs (that I am familiar with) in support of the advanced wood products manufacturing sector are actively supported by industry stakeholders (eg, program advisory committee) | 1 | 2 | 3 | 4 | 5 | DK |
| Graduates of post secondary programs in support of the advanced wood products manufacturing sector possess the skills and knowledge needed by industry | 1 | 2 | 3 | 4 | 5 | DK |

C3. Does your company offer employees in-house or industry-based training that provides workers with skills upgrading?

- Yes
- No

C4. Please identify any training/upgrading programs that you believe are particularly effective at improving the skills and abilities of workers.

| Upgrading Programs (including skills, language, management, etc.) | |
|---|---|
| <i>In-house / Industry-based (please specify)</i> | <i>Program Strengths (please specify)</i> |
| 1. _____ | _____ |
| 2. _____ | _____ |
| 3. _____ | _____ |

C5. Based on a scale of 1 to 5 (where 1 is Strongly Disagree and 5 is Strongly Agree), please indicate your level of agreement with the following statements regarding barriers to training (please circle your answers).

| Statement | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree | Don't Know |
|--|-------------------|----------|---------|-------|----------------|------------|
| There is a lack of industry training/upgrading opportunities in the region in which we operate | 1 | 2 | 3 | 4 | 5 | DK |



HR Sector Study

| Statement | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree | Don't Know |
|---|-------------------|----------|---------|-------|----------------|------------|
| The available industry training/upgrading opportunities are not relevant to my business needs. Please explain. | 1 | 2 | 3 | 4 | 5 | DK |
| The available industry training/upgrading opportunities are not effective for improving skill sets. Please explain. | 1 | 2 | 3 | 4 | 5 | DK |
| It is difficult providing workers the time needed to participate in upgrading programs | 1 | 2 | 3 | 4 | 5 | DK |
| The cost of industry training/upgrading is too expensive for our company | 1 | 2 | 3 | 4 | 5 | DK |

C6. We are interested in education and training development opportunities that could be introduced to better support the advanced wood products manufacturing sector. On a scale of 1 to 5 – with 1 being Very Unsupportive and 5 being Very Supportive – please indicate your level of support for the following training strategies that may be pursued by the sector (please circle your answers).

| Training Strategies | Very Unsupportive.....Very Supportive | | | | | Don't Know |
|---|---------------------------------------|---|---|---|---|------------|
| Increased emphasis on co-operative education and internships by private and public training institutions | 1 | 2 | 3 | 4 | 5 | DK |
| Establishment of an Industry Advisory Committee to advise secondary/post secondary institutions on training needs of the sector | 1 | 2 | 3 | 4 | 5 | DK |
| Development of industry-led training/upgrading program(s) to be co-funded by employers, workers and government | 1 | 2 | 3 | 4 | 5 | DK |
| Establishment of a training “brokerage” service where employers can jointly purchase required training | 1 | 2 | 3 | 4 | 5 | DK |

C7. What other strategies would improve the education and training system to help meet the human resource needs of your sector?

C8. If the advanced wood products manufacturing sector could solve only one of its HR problems now, what problem would that be and what action(s) might you take to help resolve it?



HR Sector Study

C9. Does your company have a human resource strategy to address your workforce requirements over the next 4 years (2014) and beyond?

Yes - Please explain.

No

C10. Do you have any other comments you would like to make regarding human resource issues or opportunities for the advanced wood products manufacturing sector?

D: YOUR COMPANY'S WORKFORCE (est. 15 minutes)

This section of the survey is interested in the total number of workers within your organization and the projected number of workers needed to meet future demand.

D1. Please indicate the total number of full-time (FT) and part-time (PT) workers your company employed in 2007, the current number of workers employed (2010), and the current vacancies (2010) for both administrative and production workers.

Note: Part-time employment includes employees working less than 30 hours per week, as well as contract workers hired on a temporary basis.

| Job Category | Workforce (2007) | | Current Workforce (2010) | | Current Vacancies (2010) |
|--|------------------|--------|--------------------------|--------|--------------------------|
| | FT (#) | PT (#) | FT (#) | PT (#) | Total (#) |
| Administrative Workforce – all employees designated as executive, operations management, sales and administrative staff. | | | | | |
| Production Workforce – all employees directly involved in the supervision, processing, assembly, inspection and installation of advanced wood products. | | | | | |

D2. Please indicate by select occupation the number of workers your company employed in 2007, the current number of workers employed (2010), and the current number of vacancies (2010).

| Select Occupation | Workforce (2007) | | Current Workforce (2010) | | Current Vacancies (2010) | |
|-------------------------------------|------------------|--------|--------------------------|--------|--------------------------|--------|
| | FT (#) | PT (#) | FT (#) | PT (#) | FT (#) | PT (#) |
| Operations Managers (Manufacturing) | | | | | | |



HR Sector Study

| Select Occupation | Workforce (2007) | | Current Workforce (2010) | | Current Vacancies (2010) | |
|--|------------------|--------|--------------------------|--------|--------------------------|--------|
| | FT (#) | PT (#) | FT (#) | PT (#) | FT (#) | PT (#) |
| Supervisors (Plant Management) | | | | | | |
| Industrial Engineering, Manufacturing Technologists & Technicians | | | | | | |
| Industrial Designers, Drafting Technologists & Technicians (CAD/CAM) | | | | | | |
| Woodworking Machine Operators | | | | | | |
| Cabinet Maker | | | | | | |
| Assemblers, Advanced Wood Products and Related | | | | | | |
| Finishers, Advanced Wood Products and Related | | | | | | |
| Industrial Electrician | | | | | | |
| Maintenance / Industrial Mechanic | | | | | | |

D3. Please indicate by select occupation the projected number of workers your company expects to require in 2014.

Note: The projected number of workers includes the current number of workers + the current number of vacancies + the number of additional workers needed to meet projected future growth.

| Select Occupation | Total Projected Workforce (2014) (#) |
|--|--------------------------------------|
| Operations Managers (Manufacturing) | |
| Supervisors (Plant Management) | |
| Industrial Engineering, Manufacturing Technologists & Technicians | |
| Industrial Designers, Drafting Technologists & Technicians (CAD/CAM) | |
| Woodworking Machine Operators | |
| Cabinet Maker | |
| Assemblers, Advanced Wood Products and Related | |
| Finishers, Advanced Wood Products and Related | |
| Industrial Electrician | |
| Maintenance / Industrial Mechanic | |

D4. What proportion of your selected production workforce falls into the following age and gender categories?

| Select Occupation | Age | | | | Gender | |
|--|---------|-----------|-----------|---------|----------|------------|
| | <25 (%) | 25-39 (%) | 40-54 (%) | 55+ (%) | Male (%) | Female (%) |
| Operations Managers (Manufacturing) | | | | | | |
| Supervisors (Plant Management) | | | | | | |
| Industrial Engineering, Manufacturing Technologists & Technicians | | | | | | |
| Industrial Designers, Drafting Technologists & Technicians (CAD/CAM) | | | | | | |
| Woodworking Machine Operators | | | | | | |



HR Sector Study

| Select Occupation | Age | | | | Gender | |
|--|---------|-----------|-----------|---------|----------|------------|
| | <25 (%) | 25-39 (%) | 40-54 (%) | 55+ (%) | Male (%) | Female (%) |
| Cabinet Maker | | | | | | |
| Assemblers, Advanced Wood Products and Related | | | | | | |
| Finishers, Advanced Wood Products and Related | | | | | | |
| Industrial Electrician | | | | | | |
| Maintenance / Industrial Mechanic | | | | | | |

D5. Would you consent to a follow-up phone conversation with the consultant to discuss any of your survey responses?

- Yes – Please provide telephone contact information _____
- No

THAT CONCLUDES THE QUESTIONNAIRE. THANK YOU FOR YOUR PARTICIPATION.

Please return completed questionnaire by February 26, 2010:

- Mail** Enclosed postage-paid envelope
- Fax** Fax to R.A. Malatest & Associates Ltd. 1-888-384-2774 (toll free)
- Phone** Phone R.A. Malatest & Associates Ltd. 1-877-386-1824 (toll free)
- Online** www.malatest/WMC/HR

**LABOUR MARKET UPDATE
OF THE NATIONAL HR SECTOR STUDY**

*Discussion with Key Stakeholders in the Advance Wood
Products Manufacturing Sector*

January 2010

| | |
|----------------------|---|
| | |
| Topic | Criteria |
| Industry | <ul style="list-style-type: none">• Location (head office)• Scope of operation – local, national, international• Primary business activity (specialization) |
| Key Questions | None |

| Topic | Criteria |
|----------------------|--|
| Occupations at Risk | <p>Professional</p> <ul style="list-style-type: none"> – production management (e.g., engineers, technologists, other non-certified) – product development (e.g., designers, drafters) <p>Supervisory</p> <ul style="list-style-type: none"> – foremen, forewomen, other <p>Production</p> <ul style="list-style-type: none"> – manufacturing (e.g., CNC machine operators/programmers, component wood machining) – installation (e.g., cabinet makers, carpenters) – general (e.g., finishers, assemblers, packers) <p>Support Trades</p> <ul style="list-style-type: none"> – maintenance mechanic, industrial electricians, other |
| Key Questions | <p>Identify those occupations that face:</p> <ul style="list-style-type: none"> • chronic labour shortages • chronic skills shortages • chronic worker turnover |

| | |
|----------------------|--|
| | |
| Topic | Criteria |
| Sources of Labour | <ul style="list-style-type: none"> • Secondary education (e.g., Woodlinks) • Post secondary education (universities, colleges, institutes) • Apprenticeship training • Industry training (in-house, external) • Other industries (e.g., construction) • Other companies within/outside wood products manufacturing sector • Other jurisdictions (immigration) |
| Key Questions | <p>Rate the importance of each labour source (1 low / 5 high)</p> <p>Together, are these sources of labour meeting your needs?</p> |

| | |
|----------------------|---|
| | |
| Topic | Criteria |
| Recruitment | <ul style="list-style-type: none"> • Skills / labour shortages (occupations at risk) |
| Key Questions | <p>What barriers do employers / sector face recruiting occupations at risk?</p> <ul style="list-style-type: none"> – lack of experience / qualifications – wage and benefit expectations – competition from higher wage industries – marketing and promotion – other <p>What recruitment strategies does your company / sector employ?</p> |

| | |
|----------------------|--|
| | |
| Topic | Criteria |
| Retention | <ul style="list-style-type: none"> • Workforce turnover (occupations at risk) |
| Key Questions | <p>What barriers do employers / sector face retaining workers?</p> <ul style="list-style-type: none"> – lack of training opportunities – lack of career development – competition from other industries – economic instability – other <p>What retention strategies do companies employ?</p> <ul style="list-style-type: none"> – career progression, profit sharing, skills upgrading, etc <p>Impact of economic slow down</p> |

| | |
|----------------------|--|
| | |
| Topic | Criteria |
| Training Gaps | <ul style="list-style-type: none"> • Formal training (degree, diploma, certificate) • Industry training (in-house, external) |
| Key Questions | <p>Identify post secondary education / training programs that are effective at preparing students to perform <u>entry-level</u> work in the sector.</p> <p>Identify industry training programs that have been particularly effective at upgrading the skills of <u>existing</u> workers to meet the needs of a changing workplace (open).</p> <p>What are some of the gaps with respect to current education and training programs in support of your sector (open)?</p> <ul style="list-style-type: none"> – lack of training opportunities – cost of training (i.e., students and employers) – changing skill requirements (e.g., technology) – relevance to industry needs |

| | |
|---------------------|--|
| | |
| Topic | Criteria |
| Training Strategies | <ul style="list-style-type: none"> • Options (What possible strategies?) |
| Discuss | <ol style="list-style-type: none"> 1. Increased emphasis on co-operative education / internships by private and public training institutions 2. Development of industry-led training/upgrading program(s) to be co-funded by employers, workers and government (e.g., pre-employment) 3. Establishment of a training “brokerage” service where employers can jointly purchase required training 4. Establishment of an Industry Advisory Committee to advise secondary and post secondary institutions on training needs of the sector 5. Development of national occupational standards? |

APPENDIX D
POST SECONDARY TRAINING INVENTORY REVIEW

Post Secondary Training Inventory Review

| Province | Institution | Program | Credential & Duration | Program courses |
|----------|--|---|--|--|
| AB | Northern Alberta Institute of Technology | Advanced Woodworking for Industry | Continuing Education | CNC Wood Machining; Wood Operating Process Software; Vectorworks/Interior CAD; and Integrated Software Solutions (Profacto). |
| AB | Northern Alberta Institute of Technology | Furniture Design & Construction Certificate | Continuing Education (210 hours) | Furniture Design & Techniques - Level I; Small Table Construction; Small Cabinet Construction; Basic Chair Construction; Furniture Finishing; Wood Working Skills; Woodworking For Women Level 1 and 2; Table Saw. |
| AB | Southern Alberta Institute of Technology | Pre-employment Cabinetmaker | Certificate (12 weeks) | |
| BC | British Columbia Institute of Technology | Automated Woodworking Processes | Associate Certificate (25 weeks) | Computer-Aided Design (CAD); Computer-Aided Machining (CAM); CNC sawing, routing and drilling; Optimization software; Tooling and hardware; and Associated non-computerization equipment. |
| BC | British Columbia Institute of Technology | Industrial Wood Processing and Management | Certificate (Part-time/Distance Education to maximum 3 years). | Supervisory Skills; Principles of Management; Business Process Improvement; Introduction to Log Scaling (on-site); Engineered Wood Products; Wood Machining/Saw Technology; Project and Report; Kiln Drying; Value Added Wood Manufacturing; and Quality Control - Engineered Wood. |

Post Secondary Training Inventory Review

| Province | Institution | Program | Credential & Duration | Program courses |
|----------|--|---|---|--|
| BC | British Columbia Institute of Technology | Industrial Wood Processing and Management | Degree (Part-time/ Distance Education to maximum 3 years). | <p>Leadership 1 - Interpersonal Skills; Leadership 2 - Team Skills; Electrical Systems and Application Make-up; Process Control for Wood Products; Control and Electronics Laboratory; Management Engineering Project; Mill Field Trip 2; Engineered Wood Production; Forest Industry Labour Relations; Safety and Cost Control; Mill Services; Advanced Sawmill Optimization; Managing Conflict in the Workplace; Leadership 3 - Leading Organizations; Enhancing People Skills; Organizational Behaviour; and Managing an Organizational Change.</p> |
| BC | British Columbia Institute of Technology | Joinery (Cabinetmaker) Foundation | Certificate (25 weeks) | <p>Use Safe Work Practices; Solve Mathematical Problems; Apply Layout Techniques; Care and Use of Hand Tools; Identify Woodworking Joints; Describe Portable Power Tools; Use Woodworking Machines; Identify Materials; Use Machining/Assembly Techniques; Apply a Finish; Install Millwork; and Prepare for Employment. Practical: Create Shop Drawings; and Practical Projects.</p> |
| BC | British Columbia Institute of Technology | Manufacturing - Bachelor of Technology | Degree | <p>Manufacturing Management; Automation and Robotics; Manufacturing Processes; Design for Manufacture and Assembly; Materials; Product Development; Operations Management; Information Technology; and Quality Assurance and Control.</p> |

Post Secondary Training Inventory Review

| Province | Institution | Program | Credential & Duration | Program courses |
|----------|--|--|--------------------------------------|--|
| BC | British Columbia Institute of Technology | Wood Products Manufacturing | Associate Certificate (Part time) | <p>Introduction to Quality Control Methods; Lumber Dry Kiln Operation; Basic Wood Products Technology; and Wood Science; Primary Manufacturing Specialty Sawmilling Fundamentals; Lumber Finishing and Saw Technology; Engineered Wood Products; and Equipment Maintenance - Wood. Secondary Manufacturing Specialty Wood Gluing; Wood Products Design; and Tooling / Advanced Wood Machining; CAD/CAM Specialty AutoCAD 1 and 2; Cad/Cam for Wood Processing; Supervision Specialty Operations Management Fundamentals; and Supervisory Skills. Marketing Specialty Wood Products Distribution; Offshore Wood Products Sales/Distribution; and Value-Added Wood Entrepreneur Practicum.</p> |
| BC | British Columbia Institute of Technology | Wood Product Sales and Distribution | Certificate | <p>Level 1: Business Information Systems 1 and 2 Technical Communication 1 and 2 Occupational First Aid; Pre-Calculus; Introduction to Probability and Statistics; Forestry Fundamentals; Lumber Fundamentals; Engineered Wood Products Fundamentals; Lumber Tallying; Lumber Grading 1 (Uppers and Construction Grades). Level 2: Introduction to Business; Teamwork Skills; Essentials of Marketing; Quality Assurance Fundamentals; Operations Management Fundamentals; Offshore Wood Products Sales/Distribution; North American Wood Products Sales and Distribution; Wood Science; Lumber Grading - Uppers Grades; and Mill Field Trip .1</p> |

Post Secondary Training Inventory Review

| Province | Institution | Program | Credential & Duration | Program courses |
|----------|--------------------------|----------------------------------|---------------------------------|---|
| BC | Camosun College | Fine Furniture - Joinery | Certificate (32 or 40 weeks) | <p>Fine Furniture 1 Instruction on hand and power tools used in the furniture trade, with an emphasis on safety, wood products and materials, basic joinery, fastening methods, selection and use of adhesives and abrasive materials, commercial practice and processes of design.</p> <p>Fine Furniture 2 Instruction on advanced techniques including veneering, laminating, lathe turning, carving and shaping curves, advanced joinery techniques, finishing topcoat materials and application techniques, and the use of non-wood products.</p> <p>Fine Furniture 3 Instruction on presentation techniques, becoming more adept at the commercial practices in the furniture trade, basic upholstery, furniture restoration and repair.</p> |
| BC | College of New Caledonia | Lumber Manufacturing Certificate | Certificate (15 weeks) | <p>Overview of the lumber manufacturing industry; Safety certification courses; Skill certification for entry-level positions; Employability skills; Math and computer skills; and On-the-job work placement experience.</p> |

Post Secondary Training Inventory Review

| Province | Institution | Program | Credential & Duration | Program courses |
|----------|---|-------------------------------------|---------------------------|--|
| BC | Emily Carr University of Art and Design | Industrial Design* | Degree (3 years) | <p>INDDesign Core Studio 1; Industrial Design Drawing 1; Freehand Drawing & Drafting; 3D Model, Sketch & Prototype; Industrial Design Essentials; INDD Core Studio 2 ; Computer Aided Design; Soft Product Design; Ceramics: Introductory; Ceramics: Moldmaking; Computer Aided Design 2; Wood Workshop; Furniture Design; Electronic Design; Product Development & Marketing; Interaction Design; Medical and Assistive Devices; Sustainable Design Strategies; Ceramics: Advanced; Special Topics: Factory ; INDD Core Studio; New Wood Materials; New Materials; INDD Core Studio; Interaction Design; Projects in Sustainable Design; and Graduation Workshop.</p> |
| BC | North Island College | Joinery/Cabinetmaking Foundation | Certificate (26 weeks) | <p>Introduction to the Joinery Trade and Safety; Identify Materials; Identify Woodworking Joints; Apply Layout Techniques; Use Hand Tools; Use Portable Power Tools; Use Woodworking Machines; Use Assembly Techniques; Apply a Finish, and Install Millwork.</p> |

Post Secondary Training Inventory Review

| Province | Institution | Program | Credential & Duration | Program courses |
|----------|---|--|---------------------------|---|
| BC | Okanagan College | Carpentry/Joinery | Certificate | Safe Work Practices; Trades Mathematics; Read/Interpret/Sketch/Draw/ Specifications; Identify and Use Materials; Use Joinery Tools and Equipment; Construct Cabinets; Use of Carpentry Tools and Equipment; Site Layout, Build Concrete Forms; Frame Floors, Walls and Roofs; Joinery First Level Exam; and Carpentry First Level Exam. |
| BC | Selkirk College | Fine Woodworking* | Certificate | Leadership Fundamentals & Change Management; Motivation and Productivity; Supervision & Management Principles; Project Management: Leading for Success; Communication Concepts; and Analytical Decision Making. Electives are available on: Organizational Behavior; Labour Relations; Human Resources; Finance; and Law. |
| BC | Thompson Rivers University | Computerized Bachelor of Technology - Trades & Technology Leadership Program | Degree | |
| BC | Thompson Rivers University | Joinery | Certificate | Identifying materials; Construction of wood joints; Use of Joinery Shop equipment; Identifying cabinet designs and hardware; Applying layout techniques; Cutting bills; Material breakout; Machine cabinet details; Cabinet assembly; Installing cabinet hardware; Finish application; Plastic laminate application; Methods of cabinet installation; and Methods of wall paneling installation. |
| BC | University College of the Fraser Valley | Joinery | Certificate (6 months) | Reading and interpreting drawings; Using joinery shop equipment; Applying layout techniques; Assembling cabinets; Applying finishes; Installing hardware; and Technical Communications. |

Post Secondary Training Inventory Review

| Province | Institution | Program | Credential & Duration | Program courses |
|----------|--------------------------------|--|-------------------------------------|--|
| BC | University of British Columbia | Certificate in Industrial Wood Finishing | Continuing Education (3 months) | <p>Module 1. Introduction to Wood Finishing; Module 2. Colour Theory and Wood Colour; Module 3. Surface Preparation; Module 4: Surface Finishes; Module 5: Spraying Technology; Module 6: Automated Finishing; Module 7: Drying and Curing of Finishes; Module 8: Post-Treatments and Cost Considerations; Module 9: Coating Parameters, Recycling, Safety, Environmental; and Module 10 : Quality Control and Finish Testing. Practical component covers following topics: Measuring the colour of Canadian wood species; Farnsworth-Munsell colour test; Finish sanding and surface preparation; Conditioning of surfaces for staining; Spraying basics – gun setup, correct use, and cleaning; Staining effects & simple finishes, chemical staining; Advanced staining systems; Preparing bleaches and removing stains from wood; Tests on liquid finishes; Tests on wet coatings; Water-based finishes; Roller coating; UV curing; Curtain coating; Powder coating of MDF; Achieving special finishing effects; Exterior finishes and testing; Testing the properties of finishes; and Tours of various industrial finishing facilities.</p> |
| BC | University of British Columbia | Wood Products Processing* | Degree (4 years or 5 years coop) | <p>Wood structure, mechanics and physics; Engineering and production; Statistical analyses; Business operations; Global marketing; and Quality control.</p> |

Post Secondary Training Inventory Review

| Province | Institution | Program | Credential & Duration | Program courses |
|----------|-------------------------------|--|-----------------------|---|
| MB | Assiniboine Community College | Carpentry and Woodworking | Certificate | Blueprint Reading; Building Layout; Building Materials; Building Science; Cabinet Making; Communications; Concrete Forming Technology; Construction Safety; Construction Trades Geometry; Exterior Finishing; Hand Tools; Interior Finishing; Practicum; Roof Framing; Shop Layout; Stair Building; Wood Frame Construction; Woodworking Machines 1 and 2. |
| MB | Red River College | Wood Products Manufacturing Technology - Certificate | Certificate (1 year) | Technical Communications; Drafting and Interpreting Architectural Drawings; Mathematics; Machining 1 and 2 (Practical); WHMIS Workshop; General Safety Training; Portable Power Tools; Hand Tools (Theory and Practical); Applied Wood Science; Windows & Doors; Furniture Finishing 1 and 2 (Theory and Practical); PC Fundamentals; Stationary Woodworking Equipment; and Wood and Wood Related Materials Portfolio Workshop; CNC Woodworking; History of Furniture Design; Product Design and Development; Woodworking Techniques; and Co-op Work Placement |

Post Secondary Training Inventory Review

| Province | Institution | Program | Credential & Duration | Program courses |
|----------|-------------------|---|-----------------------|--|
| MB | Red River College | Wood Products Manufacturing Technology - Diploma* | Diploma | <p>Applied Wood Science; AutoCAD 2; Calculus 1; CNC Woodworking 1 and 2; Co-op Work Placement Design for Manufacturing/DFX; and Drafting & AutoCAD; Drafting and Interpreting Architectural Drawings; Furniture Finishing 1 and 2 (Theory and Practical); General Safety Training; Hand Tools (Theory) and Hand Tools (Practical); History of Furniture Design; Industrial Engineering 1 and 2; Introduction to Business; Machining 1, 2, and 3 (Practical); Machining and Tooling; Mathematics 1, 2, 3, and 4 Operations Management; PC Fundamentals; Portable Power Tools; Portfolio Workshop 1 and 2; Pre-Calculus; Product Design and Development 1 and 2; Production Equipment; Production Planning and Control. Quality Assurance; Report Writing; Stationary Woodworking Equipment; and Statistical Process Control; and Supervisory Management; Technical Communications 1 and 2; WHMIS Workshop; Windows & Doors; Wood Adhesives Technology; Wood and Wood Related Materials.</p> |

Post Secondary Training Inventory Review

| Province | Institution | Program | Credentialed & Duration | Program courses |
|----------|---------------------------------|---------------------------|-------------------------|--|
| MB | Red River College | Carpentry and Woodworking | Certificate | <p>Communications; Stairs, Practical; Cabinet Work, Practical; Concrete Form Construction, Practical; Equal Slope Roofing, Practical; Finishing, Practical; General Framing, Practical; Surveying, Practical; WHMIS Workshop; Surveying, Theory; AC-015 Accreditation for Level 1; General Safety Training; Hand Tools, Practical and Theory; Blue Print Reading and Sketching for Carpentry PE; Concrete Form Construction, Theory; Equal Slope Roofing, Theory; Cabinet Work, Theory; Stairs, Theory; Finishing, Theory; Wood Finishing, Theory; Carpentry Mathematics; Carpentry Science; General Framing, Theory; Wood Finishing, Practical; Woodworking Machines, Theory and Practical In-Industry Work Experience.</p> |
| MB | University College of the North | Carpentry - Woodworking | Certificate (1 year) | <p>Tradition and Change: An Aboriginal Perspective; Pre-employment Trades Communication; Hand Tools; Woodworking Machines; Concrete Form Construction; General Framing; Equal Pitch Roof Framing; Stair Construction; Exterior & Interior Finishing; Cabinet Making; Work Practicum; Core Occupational Health and Safety; Standard First Aid with CPR (St. John Ambulance); Mathematics 1 and 2; Blueprint Reading & Drafting 1 and 2</p> |

Post Secondary Training Inventory Review

| Province | Institution | Program | Credential & Duration | Program courses |
|----------|--|---|-----------------------|--|
| NB | Collège communautaire du Nouveau-Brunswick | Ébénisterie et bois ouvré (Cabinet Making and Woodworking) | Certificate | Design; Computer Assisted Design (CAD); Finishing; Computer Assisted Production; Computers; Materials; Math; Tools and Equipment; Production Planning; Health and Safety; Production Techniques; and Woodworking. |
| NB | Collège communautaire du Nouveau-Brunswick | Gestion de la production en bois ouvré* | Certificate | Aménagement de l'environnement architectural; Comptabilité de gestion; Dessin assisté par ordinateur (DAO); Fabrication assistée par ordinateur (FAO); Entrepreneuriat; Fonctionnement et entretien des machines spécialisées; Logiciels d'optimisation et de planification; Meubles construits sur mesure, matériels d'agencement; Sélection des matériaux pour la fabrication de meubles; Système de la production et des opérations; Techniques de conception de l'ameublement. |
| NB | University of New Brunswick | Wood Products Minor** | | Marketing of technological services and products Total quality management Organic chemistry I Physical and mechanical properties of wood Processing of wood products Performance of structural wood systems Kiln drying and preserving wood Directed studies in forestry |

Post Secondary Training Inventory Review

| Province | Institution | Program | Credential & Duration | Program courses |
|----------|-------------------------------|--------------|-------------------------|---|
| NL | College of the North Atlantic | Cabinetmaker | Certificate (1 year) | Occupational Health and Safety; WHMIS; Standard First Aid; Blueprint 1 (Basic), 2 (Intermediate), and 3 (Advanced); Construction Safety; Hand Tools; Fasteners and Adhesives; Materials; Portable Power Tools; Common Stationary Equipment; Joint Fabrication and Assembly; Laminating; Specialty Stationary Equipment; High Production Equipment; Basic Casework; Wood Finishing; Stairs; Industry Codes and Practices; Installation Procedures; Blueprint 4 (CAD); Advanced Casework and Furniture Design; Workplace Correspondence; Customer Service; Quality Assurance/Quality Control; Introduction to Computers; Workplace Skills; Job Search Techniques; and Entrepreneurial Awareness. |

Post Secondary Training Inventory Review

| Province | Institution | Program | Credentialed & Duration | Program courses |
|----------|-------------------------------|---|-------------------------|---|
| NS | Nova Scotia Community College | Wood Products Manufacturing Technology* | Diploma | <p>Communications 1 and 2; Computer Applications 1; Materials 1 and 2 and 3; Technical Mathematics 1 and 2; Hand Tools; Finishing 1 and 2 and 3; Drafting and Interpreting Technical Drawings; Portable Power Tools; History of Furniture Design; Woodworking Techniques 1, 2, 3, and 4; Machining 1, 2, 3, and 4; CNC 1 and 2; Product Engineering and Production; Auto CAD 1 and 2 and Spreadsheets; Trade Practice/Self-Identified Projects; Kitchen Design Applications; Woodworking Business Practice; Production Management 1 and 2; Industrial Design; Technical Equipment and Tooling; Administration Management; Work Experience; Introduction to WHMIS (Workplace Hazardous Materials Information Systems); and Introduction to NS OH&S Act.</p> |
| NS | NSCC | Cabinetmaking | Certificate (1 year) | <p>Cabinet Shop Safety; Hand and Portable Power Tools; Materials; Math for Cabinetmakers; Layout, Sketching, and Blueprint Reading; Woodworking Machinery; Finishing Techniques; Production Machinery; Basic Casework; Millwork; Advanced Casework; Introduction to Marine Joinery; Work Experience - CABC; Communications 1 and 2; Computer Applications 1; Introduction to WHMIS; and Introduction to NS OH&S Act.</p> |

Post Secondary Training Inventory Review

| Province | Institution | Program | Credential & Duration | Program courses |
|----------|-------------------|---|---|--|
| ON | Algonquin College | Cabinetmaking and Furniture Technician* | Diploma (45 weeks) | <p>Level 1: Drafting 1; Communications 1; Is That Ethical; Mathematics; Joinery; Wood Technology; and Hand Tools and Machine Basics.</p> <p>Level 2: CNC for Cabinet and Furniture Manufacturing; Drafting and Plan Reading; Furniture Making; Advanced Machining; Furniture History and Construction; Furniture Finishing Fundamentals; and General Education Elective.</p> <p>Level 3: Communications II for Technicians; History of Architecture 1; Applied Business Practices; Furniture Finishing and Touch-Up; Furniture and Commercial Cabinetry; and Commercial Cabinetry.</p> |
| ON | Canadore College | AutoCAD Certificate | Continuing Education | <p>Level 1: Portable Hand and Power Tools; Stationary Power Tools; Building Materials; Furniture Design and Construction 1; College Communication; and Interpersonal Relations.</p> <p>Level 2: Preproduction Planning; Furniture Design and Construction 2; and Personal Finance.</p> <p>Level 3: Cabinet Construction and Installation; Interior Finishes; and Business for Non-Business Students.</p> |
| ON | Canadore College | CabinetMaking Manufacturing Techniques | Certificate (30 weeks) or Diploma (45 weeks) | |

Post Secondary Training Inventory Review

| Province | Institution | Program | Credentialed & Duration | Program courses |
|----------|-------------------|--|-------------------------|--|
| ON | Conestoga College | Woodworking Manufacturing Management (Post-Graduate) | Certificate (1 year) | <p>Level 1: Time And Motion Study 1: Work Design; Planning and Control Systems 1; Woodworking Facilities Planning 1; and Product Material Testing and Analysis.</p> <p>Level 2: Effective Supervision; Time And Motion Study 2: Work Measurement; Planning and Control Systems 2; Woodworking Facilities Planning 2; and Quality Control. Computer training: Access 2007 and Excel 2007.</p> |

Post Secondary Training Inventory Review

| Province | Institution | Program | Credential & Duration | Program courses |
|----------|-------------------|---|-------------------------------|--|
| ON | Conestoga College | Woodworking Technology- Architectural Millwork (Co-op) | Advanced Diploma (3 years) | <p>Level 1: Drafting and Blueprint Reading; Student Success for Higher Learning; Numerical Woodworking Applications; Materials; Woodworking Techniques 1; Machining 1 - Practical; Finishing 1 – Theory and Practical. Level 2: Co-op and Career Preparation; Computer Drafting; Product Engineering; History of Furniture Styles; CNC (Woodworking); Woodworking Techniques 2; Finishing 2 – Theory and Practical; Machining 2 – Practical; Level 3: Co-op Work Term 1 (Woodworking) Level 4: Computerized Product Development 1; Computer Machining Practical and Theory Shop Management; Woodworking Techniques 3; Finishing 3 - Practical; and Architectural Shop Practices. Level 5: Co-op Work Term 2 (Woodworking) Level 6: Advanced Computer Applications; Architectural Product Development 1; Computerized Product Development 2; Effective Supervision; Finishing 3 Theory; Machining 4 - Practical; Architectural Techniques. Level 7: Co-op Work Term 3 (Woodworking) Level 8: Automated Manufacturing; Time And Motion Study 1: Work Design; Planning and Control Systems 1; Woodworking Facilities Planning 1; and Computer Applications In Wood Products 1. Level 9: Effective Supervision Practicum; Time And Motion Study 2: Work Measurement; Planning and Control Systems 2 Woodworking Facilities Planning 2; Quality Control; Computer Applications In Wood Products 2; and Product Material Testing and Analysis.</p> |

Post Secondary Training Inventory Review

| Province | Institution | Program | Credentialed & Duration | Program courses |
|----------|-------------------|---|-------------------------|--|
| ON | Conestoga College | Integrated Advanced Manufacturing Technologies (Co-op)* | Degree (with Coop) | <p>Advanced Calculus; Advanced Manufacturing Practices; and Advanced Mechanical Design 1 and 2; Analysis and Design of Mechanisms; Business Fundamentals; Calculus for Engineering; Chemistry; Computer Integrated Manufacturing; Control Systems; Co-op and Career Preparation; Design for Manufacturing and Assembly; and Design of Machine Elements; Differential Equations Electric Motors and Drives; Electrical & Electronic Foundations; Engineering Drawing Principles 1 and 2 Engineering Economics; Engineering Mechanics; Financial Management; Fluid Mechanics; and Fluid Power and Mechanics; Foundation Module (Advanced Manufacturing); Generic Skills; Human Resources Management; Industrial Engineering Law, Ethics and Professional Practice; Manufacturing Processes; Material Removal Manufacturing Processes; Materials Science; Microprocessors and Embedded Systems; Numerical Methods And Linear Algebra; Personal Awareness and Group Dynamics; Physics – Mechanical; Probability and Statistics; Environment, Health and Ergonomics; Programmable Logic Controllers; Programming Fundamentals; Project Management, Methods & Tools; and Quality Assurance: Methods and Management. Robotics Science, Technology and Society; Sensors, Actuators and Instrumentation; Strategic Management; and Strength of Materials 1 and 2 Style in Scientific & Technical Writing; Technical Communications and Visual Media; Thermodynamics.</p> |

Post Secondary Training Inventory Review

| Province | Institution | Program | Credential & Duration | Program courses |
|----------|-------------------|-------------------------|-----------------------|---|
| ON | Conestoga College | Woodworking Technician* | Diploma (2 years) | <p>Level 1: Drafting And Blueprint Reading; Student Success for Higher Learning; Numerical Woodworking Applications; Materials; Woodworking Techniques 1; Machining 1 - Practical; Finishing 1 - Theory and Practical. Level 2: Computer Drafting; Product Engineering; History of Furniture Styles; Woodworking Techniques 2; Finishing 2 – Theory and Practical; Machining 2 - Practical. Level 3: Computerized Product Development 1; Production Equipment; Woodworking Techniques 3; Machining 3 - Practical; and Finishing 3 - Practical. Level 4: Product Design And Development II; Woodworking CNC Applications; Shop Management; Architectural Millwork/Kitchen Cabinets Module; Woodworking Techniques 4; and Machining 4 - Practical.</p> |

Post Secondary Training Inventory Review

| Province | Institution | Program | Credentialed & Duration | Program courses |
|--|-------------------|-------------------------------|----------------------------|---|
| ON | Conestoga College | Woodworking Technology Co-op* | Advanced Diploma (3 years) | <p>Level 1: Drafting And Blueprint Reading; Student Success for Higher Learning; Numerical Woodworking Applications; Materials; Woodworking Techniques 1; Machining 1 - Practical; Finishing 1 - Theory; and Finishing 1 - Practical. Level 2: Co-op and Career Preparation; Computer Drafting; Product Engineering; History of Furniture Styles; CNC (Woodworking); Woodworking Techniques 2; Finishing 2 – Theory and Practical; Machining 2 - Practical. Level 3: Co-op Work Term I (Woodworking) Level 4: Computerized Product Development 1; Computer Machining Practical and Theory; Computer Machining Theory; Shop Management; Woodworking Techniques 3; Finishing 3 - Practical; and Machining 3 - Practical. Level 5: Co-op Work Term 2 (Woodworking) Level 6: Computerized Product Development 2I; Effective Supervision; Architectural Millwork/Kitchen Cabinets Module; Woodworking Techniques 4; Finishing 3 Theory; and Machining 4 - Practical. Level 7: Co-op Work Term 3 (Woodworking) Level 8: Time And Motion Study 1: Work Design; Planning and Control Systems 1; Woodworking Facilities Planning 1; Computer Applications In Wood Products 1; and Product Material Testing and Analysis. Level 9: Effective Supervision Practicum; Time And Motion Study II: Work Measurement; Woodworking Facilities Planning II; Quality Control; and Computer Applications In Wood Products II.</p> |
| <p><i>Labour Market Update of the National HR Sector Study</i> Wood Manufacturing Council</p> | | | | <p>19 April 2010</p> |

Post Secondary Training Inventory Review

| Province | Institution | Program | Credential & Duration | Program courses |
|----------|---|------------------------------------|-------------------------|--|
| ON | Georgian College of Applied Arts and Technology | Cabinetmaking Techniques | Certificate (1 year) | Architectural Specialties; Cabinetmaking Theory; Cabinetmaking Applications; Finishing Processes; Stationary Power Tools; Lumber and Millwork; Finishing Applications; Cabinetmaking Materials; Advanced Projects; Machine and Production Processes; Advanced Finishing; Construction Processes; Construction Applications; Advanced Construction; Technical Drawings; and Mathematics Techniques. |
| ON | Humber College | Industrial Woodworking Technician* | Diploma | Term 1: Technical Communications 1; General Drafting and Blueprint Reading; Materials; Power Tools 1; Fundamentals of Design/Joinery; and Cabinet Construction 1. Term 2: Technical Communications 2; Humanities: An Introduction to Arts and Science; Power Tools 2; Cabinet Construction 2; Finishing 1; Bending and Laminating Methods; and Basics of CAD (Auto Sketch). Term 3: General Education Elective; Computer Woodworking Applications; Cabinet Construction 3; Operating Your Own Business; Shaping Operations; Installation/Site Work/Repair; and Finishing 2 |

Post Secondary Training Inventory Review

| Province | Institution | Program | Credential & Duration | Program courses |
|----------|----------------|--|-------------------------|--|
| ON | Humber College | Cabinet Making | Certificate (1 year) | General Drafting and Blueprint Reading; Materials; Power Tools 1 and 2; Fundamentals of Design/Joinery; Cabinet Construction 1, 2, and 3; Finishing 1 and 2; Bending and Laminating Methods; Shaping Operations; Installation/Site Work/Repair |
| ON | Mohawk College | Industrial Woodworking Technician | Diploma (2 years) | Hand and Portable Power Tools; Wood Technology; Wood Machinery and Machining 1 and 2; Mathematics; and and Safety in the Workplace. Joinery and Fastener Systems; Woodworking Materials; Furniture Design and Drafting 1; Communications (Langs.) Finishing and Repairs; Advanced Machinery and Machining; Commercial Fixtures; Moulders and Millwork; CNC Software; and General Education Elective. Complex Finishing and Repairs; Fine Furniture Fabrication; Entrepreneurship Training; CNC Applications; Active Citizenship; and Field Placement - IWW |
| ON | Mohawk College | Industrial Woodworking Techniques (Cabinetmaking) | Certificate | Hand and Portable Power Tools; Wood Technology; Wood Machinery and Machining 1 and 2 and 3; Mathematics; and Health and Safety in the Workplace. Joinery and Fastener Systems; Woodworking Materials; Furniture Design and Drafting Applications; and Communications (Language). Furniture Finishing and Repairs; Furniture Design and Drafting 3 - CAD; and Field Placement -IWW. |

Post Secondary Training Inventory Review

| Province | Institution | Program | Credential & Duration | Program courses |
|----------|-------------|--------------------------------|-------------------------------|---|
| ON | Sheridan | Crafts and Design - Furniture* | Advanced Diploma (3 years) | <p>Introduction to Object Drawing; 2-D Design; Essential Communication Skills; History of Western; Introduction to Woodworking; and Drafting for Furniture. Figure Drawing; Object Drawing; 3-D Design; Introduction to Digital Technology; Art, Crafts and Technology before the 20th Century Introduction to Wood Furniture; and Surfaces and Finishes. Material Exploration; Production Technology and Resourcing; General Education Elective; Digital Drawing; Linear Furniture Design and Construction; Materials and Techniques; and Furniture History. Craft in the 20th Century; and Digital Presentation. One of the following: Presentation Drawing; Expressive Drawing; Commercial Furniture Practices; or Cabinet Design and Construction. Business Practice; Independent Research Paper; General Education Elective; Seating; and Speculative Furniture. Professional Practice; Exhibition Production; Object of Significance; and Redesign-Remake.</p> |

Post Secondary Training Inventory Review

| Province | Institution | Program | Credential & Duration | Program courses |
|----------|----------------------|---|---------------------------|--|
| ON | St. Clair College | Woodworking Technician | Diploma (2 years) | Trade Drawings/Layout; Construction Health and Safety; People In Motion; Machining Theory 1 and 2; Machining Practice 1, 2, and 3 Materials 1 Math for Carpentry; Basic General Framing; Communications 1; Home Renovation Trade Skills; Estimating/Project Planning; Wood Finishing; Basic Roof Framing; Basic Concrete Forming; Design Studio; Building CAD 2; Machining (Kitchen Products); Computerized Kitchen Design; Product Design/Manufacturing; Computerized Numerical Control. |
| ON | St. Lawrence College | Woodworking and Fine Furniture Certificate Program | Certificate | Level 1 Project: Basic pine table and Shaker clock Level 2 Project: Regency Mirror Level 3 Project: Project: Washstand Level 4 Project: Cabinetry Level 5 Project: Choice of Tavern or Trestle table |
| PEI | Holland College | Wood Manufacturing - Cabinetmaking | Certificate (9 months) | |

Post Secondary Training Inventory Review

| Province | Institution | Program | Credential & Duration | Program courses |
|----------|-------------------------|--|-----------------------|---|
| QC | Cegep de Saint Félicien | Technologie de la transformation des produits forestiers | 3 years | <p>Travail du technologue; Caractéristiques des ressources et des produits forestiers; Informatique et dessin; Dynamique de l'entreprise. Mesurage; Classification des ressources et des produits forestiers; Collecte et analyse. Procédés de débitage; Organisation du travail; Procédés de jointage; Procédés de séchage. Résolution de problèmes; Santé et sécurité; Capacité de production; Coûts de transformation. Optimisation des procédés; Logistique des procédés; Efficience d'une usine; Gestion des inventaires; Contrôle de la qualité; Supervision des ressources humaines. Optimisation appliquée; Projet de développement; Évaluation de l'efficience; Résolution de problèmes appliquée; Contrôle appliqué; Organisation appliquée; Supervision appliquée.</p> |

Post Secondary Training Inventory Review

| Province | Institution | Program | Credential & Duration | Program courses |
|----------|---|---|---------------------------------|--|
| QC | Cegep de Sainte - Foy | Technologie de la transformation des produits forestiers | 3 years | <p>L'industrie du bois;</p> <p>Identification, propriétés et usages des bois;</p> <p>Mesurage des bois et de ses dérivés;</p> <p>Matériel informatique et logiciels.</p> <p>Philosophie et rationalité;</p> <p>Classification des produits structuraux et d'apparences;</p> <p>Collecte et analyse de données;</p> <p>Dynamique et environnement de l'entreprise.</p> <p>Équipements industriels;</p> <p>Débitage et usinage;</p> <p>Jointage collage du bois;</p> <p>Conditionnement et traitement des bois.</p> <p>Produits agglomérés;</p> <p>Contrôle de la qualité du produit;</p> <p>Productivité et rendement en usine;</p> <p>Efficience et détection de problèmes;</p> <p>Stage en organisation et contrôle de la production;</p> <p>Coût de production.</p> <p>Résolution de problèmes et optimisation;</p> <p>Supervision du personnel;</p> <p>Gestion des équipes de travail.</p> <p>Supervision des opérations;</p> <p>Optimisation des procédés; and</p> <p>Stage en optimisation et supervision des opérations.</p> |
| QC | École Nationale du Meuble et de l'Ébénisterie | Cours en dessin assisté par ordinateur | Continuing Education (60 hours) | <p>Introduction à l'ébénisterie;</p> <p>Tournage;</p> <p>Technique de dessin;</p> <p>Sculpture (niveau débutant).</p> <p>Planification d'un meuble à panneaux;</p> <p>Fabrication d'un meuble à panneaux; and</p> <p>Fabrication meuble simple.</p> |
| QC | École Nationale du Meuble et de l'Ébénisterie | Ébénisterie | 2 semesters | |
| QC | École Nationale du Meuble et de l'Ébénisterie | Techniques du meuble et d'ébénisterie (collégial) 233.B0 - Option Menuiserie architecturale (fabrication sur mesure)* | | |

Post Secondary Training Inventory Review

| Province | Institution | Program | Credential & Duration | Program courses |
|----------|---------------------|---|-----------------------|--|
| QC | Université de Laval | Baccalauréat coopératif en génie du bois* | Degree (4 years) | <p>Botanique forestière; Dessin pour ingénieurs; Mathématiques de l'ingénieur 1 and 2; Physique du bois; Laboratoire de physique du bois; Sciage et classement du bois; Physicochimie appliquée au bois; Ingénierie, design et communication; Probabilités et statistiques; Anatomie et structure du bois; Statique et résistance des matériaux; Sylviculture en sciences du bois; Thermodynamique en génie chimique; Mécanique des fluides; Matériaux de l'ingénieur; Mécanique du bois; Contrôle de qualité et statistiques industrielles; Chimie du bois; Opérations forestières I; Laboratoire de mécanique du bois; Charpentes en bois I; Projet de fin d'études; Adhésifs pour le bois I; Analyse financière en génie du bois; Conception des systèmes de production; Éthique et professionnalisme; Laboratoire de séchage et préservation Usinage I ; Laboratoire d'usinage; Séchage et préservation I ; Mécanique industrielle; Panneaux agglomérés; Produits de deuxième transformation I; Problématique forestière du Québec; Gestion des systèmes de production; Pâtes et papiers.</p> |

Post Secondary Training Inventory Review – Program Outcomes

| Province | Institution | Program | Capacity | Enrolment | Graduation Rate | Employment Rate |
|----------|--|---|----------|-------------------------------------|-----------------|----------------------|
| AB | Northern Alberta Institute of Technology | Advanced Woodworking for Industry | no data | no data | no data | no data |
| AB | Northern Alberta Institute of Technology | Furniture Design & Construction Certificate | no data | no data | no data | no data |
| AB | Southern Alberta Institute of Technology | Pre-employment Cabinetmaker | no data | no data | no data | no data |
| BC | British Columbia Institute of Technology | Automated Woodworking Processes | no data | 14 (total for 2007, 2008, 2009) | 90% | 80% (64% related) |
| BC | British Columbia Institute of Technology | Industrial Wood Processing and Management (certificate) | no data | no data | no data | no data |
| BC | British Columbia Institute of Technology | Industrial Wood Processing and Management | no data | no data | no data | no data |
| BC | British Columbia Institute of Technology | Joinery (Cabinetmaker) Foundation | no data | 156 (total for 2007, 2008, 2009) | 78% | 91% (60% related) |
| BC | British Columbia Institute of Technology | Manufacturing - Bachelor of technology | no data | 5 (2005, 2006) | | 100% |
| BC | British Columbia Institute of Technology | Wood Product Sales and Distribution | no data | no data | no data | no data |

Post Secondary Training Inventory Review – Program Outcomes

| Province | Institution | Program | Capacity | Enrolment | Graduation Rate | Employment Rate |
|----------|--|--|----------|------------------------------------|------------------------|--|
| BC | British Columbia Institute of Technology | Wood Products Manufacturing | no data | 13 (total for 2007, 2008, 2009) | 89% | 78% (69% related) |
| BC | Camosun College | Fine Furniture - Joinery | no data | 49 (total for 2007, 2008, 2009) | 100% | 69%, (51% related) |
| BC | College of New Caledonia | Lumber Manufacturing Certificate | no data | no data | no data | no data |
| BC | Emily Carr University of Art and Design | Industrial Design | no data | no data | 25 (2005) 29 (2006) | 93% in 2005 (79% related) 86% in 2006 (79% related) |
| BC | North Island College | Joinery/Cabinet making Foundation | no data | 38 (total for 2007, 2008, 2009) | 100% | 96% (68% related) |
| BC | Okanogan College | Carpentry/Joinery | no data | 64 (total for 2007, 2008, 2009) | 87% | 82% (65% related) |
| BC | Selkirk College | Fine Woodworking | no data | 27 (total for 2007, 2008, 2009) | 88% | 75% (50% related) |
| BC | Thompson Rivers University | Computerized Bachelor of Technology - Trades & Technology Leadership Program | no data | no data | no data | no data |

Post Secondary Training Inventory Review – Program Outcomes

| Province | Institution | Program | Capacity | Enrolment | Graduation Rate | Employment Rate |
|----------|--|--|----------|---------------------------------|-----------------|-----------------------|
| BC | Thompson Rivers University | Joinery | no data | 28 (total for 2007, 2008, 2009) | 100% | 73% (related) |
| BC | University of British Columbia | Certificate in Industrial Wood Finishing | no data | no data | no data | no data |
| BC | University of British Columbia | Wood Products Processing | no data | no data | no data | no data |
| BC | University College of the Fraser Valley | Joinery | no data | no data | no data | no data |
| MB | Assiniboine Community College | Carpentry and Woodworking | no data | no data | no data | no data |
| MB | Red River College | Carpentry and Woodworking | no data | no data | 22 (2007/06) | 83% related (2007/06) |
| MB | Red River College | Wood Products Manufacturing Technology - Certificate | no data | no data | 5 (2007/06) | 50% related (2007/06) |
| MB | Red River College | Wood Products Manufacturing Technology - Diploma | no data | no data | no data | no data |
| MB | University College of the North | Carpentry - Woodworking | no data | no data | no data | no data |
| NB | Collège communautaire du Nouveau-Brunswick | Ébénisterie et bois ouvré | no data | no data | no data | 50% related (2007) |
| NB | Collège communautaire du Nouveau-Brunswick | Gestion de la production en bois ouvré | no data | no data | no data | no data |
| NB | University of New Brunswick | Wood Products Minor | no data | no data | no data | no data |
| NL | College of the North Atlantic | Cabinetmaker | no data | no data | no data | no data |
| NS | Nova Scotia Community College | Cabinet making | no data | no data | no data | no data |

Post Secondary Training Inventory Review – Program Outcomes

| Province | Institution | Program | Capacity | Enrolment | Graduation Rate | Employment Rate |
|----------|-------------------------------|--|----------|--|---|---|
| NS | Nova Scotia Community College | Wood Products Manufacturing Technology | | | | |
| ON | Algonquin College | Cabinet making and Furniture Technician | no data | 43 (2008/09) 44 (2007/08) 42 (2006/07) | 56% (2008/09) 61% (2007/08) 50% (2006/07) | 84% (2008/09) 91% (2007/08) 94% (2006/07) |
| ON | Canadore College | AutoCAD Certificate | no data | no data | no data | no data |
| ON | Canadore College | Cabinet Making Manufacturing Techniques | no data | no data | no data | no data |
| ON | Conestoga College | Integrated Advanced Manufacturing Technologies (Co-op) | 30 | no data | no data | 100% (2008/09) |
| ON | Conestoga College | Woodworking Manufacturing Management (Post-Graduate) | no data | no data | no data | no data |
| ON | Conestoga College | Woodworking Technician | 45 | 49 (2008/09) 58 (2007/08) | 69% (2008/09) 64% (2007/08) | 84% (2008/09) 83% (2007/08) |
| ON | Conestoga College | Woodworking Technology Co-op | 40 | 35 (2008/09) 33 (2007/08) | 57% (2008/09) 67% (2007/08) | 100% (2008/09) 96% (2007/08) |
| ON | Conestoga College | Woodworking Technology- Architectural Millwork (Co-op) | 20 | no data | no data | 100% (2008/09) |

Post Secondary Training Inventory Review – Program Outcomes

| Province | Institution | Program | Capacity | Enrolment | Graduation Rate | Employment Rate |
|----------|--|--|----------|--|---|---|
| ON | Georgian College of Applied Arts and Technology | Cabinet making Techniques | no data | no data | no data | no data |
| ON | Humber College | Cabinet Making | no data | 36 (2008/09) 32 (2007/08) | 61% (2008/09) 71% (2007/08) | 90% (2008/09) 100% (2007/08) |
| ON | Humber College | Industrial Woodworking Technician | no data | 10 (2008/09) 12 (2007/08) | 60% (2008/09) 75% (2007/08) | 100% (2008/09) 100% (2007/08) |
| ON | Mohawk College | Industrial Woodworking Technician | | no data | no data | no data |
| ON | Mohawk College | Industrial Woodworking Techniques (Cabinet making) | | no data | no data | no data |
| ON | Sheridan College Institute of Technology and Advanced Learning | Crafts and Design - Furniture | no data | 18 (2008/09) | 67% (2008/09) | 100% (2008/09) |
| ON | St. Clair College | Woodworking Technician | no data | 22 (2008/09) 19 (2007/08) 16 (2006/07) | 55% (2008/09) 42% (2007/08) 69% (2006/07) | 78% (2008/09) 100% (2007/08) 100% (2006/07) |
| ON | St. Lawrence College | Woodworking and Fine Furniture Certificate Program | no data | no data | no data | no data |
| PEI | Holland College | Wood Manufacturing - Cabinet making | no data | no data | no data | no data |
| QC | Cegep de Saint Félicien | Technologie de la transformation des produits forestiers | no data | no data | no data | no data |

Post Secondary Training Inventory Review – Program Outcomes

| Province | Institution | Program | Capacity | Enrolment | Graduation Rate | Employment Rate |
|----------|---|--|----------|-----------|-----------------|--------------------------|
| QC | Cegep de Sainte - Foy | Technologie de la transformation des produits forestiers | no data | no data | no data | 100% related (2007/2008) |
| QC | École Nationale Du Meuble Et De L'Ébénisterie | Cours en dessin assisté par ordinateur | no data | no data | no data | 100% |
| QC | École Nationale Du Meuble Et De L'Ébénisterie | L'Ébénisterie | no data | no data | no data | 100% |
| QC | École Nationale Du Meuble Et De L'Ébénisterie | Techniques du meuble et d'ébénisterie (collégial) 233.B0 - Option Menuiserie architecturale (fabrication sur mesure) | no data | no data | no data | 100% |
| QC | Université de Laval | Baccalauréat coopératif en génie du bois | no data | no data | no data | 100% |

Post Secondary Training Inventory Review – Altered and Cancelled Programs

| Province | Institution | Program Name | New Program Name | Credential & Duration | Program Change |
|----------|--|---|--|---|--|
| AB | Northern Alberta Institute of Technology | Wood Products Engineering Technology | N/A | Diploma (2 years) | Canceled |
| AB | Southern Alberta Institute of Technology | Wood Engineering Technology | N/A | Diploma (2 years) | Canceled |
| BC | Camosun College | Fine Furniture | Fine Furniture - Joinery | Certificate (10 months) | Program structured for students to obtain certificate in Fine Furniture (32 weeks) or continue to obtain the certificate in Joinery-Foundations (40 weeks) |
| BC | College of New Caledonia | Wood Processing and Engineering Technology | N/A | Certificate (1 year) or Diploma (2 years) | Canceled |
| BC | Kootenay School of the Arts | Wood Products Design | N/A | Diploma (3 years) | Canceled |
| BC | University College of the Cariboo | Wood Processing Technology | N/A | Diploma (2 years) | Canceled |
| NS | Nova Scotia Community College | Cabinet Carpentry | Cabinetmaking | Certificate (1 year) | No significant change to program content. |
| NS | Nova Scotia Community College | Furniture and Woodworking Technology | Wood Products Manufacturing Technology | Diploma (2 years) | No significant change to program content. |
| ON | Algonquin college | Furniture Technician | Cabinetmaking and Furniture Technician | Diploma (48 weeks) | No significant change to program content. |
| ON | Conestoga College | Advanced Manufacturing Technologies - Wood and Composite Products | Integrated Advanced Manufacturing Technologies (Co-op) | Degree (4 years) | Program has been made more general to encompass overarching manufacturing disciplines. |
| ON | George Brown College | Furniture Technician - Production and Design | N/A | Diploma (2 years) | Canceled |

