



# Journeyman Carpenters in Australia - Lessons from the USA & Canada

**Robert Brodie**

2014 Higher Education and Skills Group Overseas Fellowship Report

**An ISS Institute Fellowship sponsored by**

The Higher Education and Skills Group, Department of Education  
and Training, Victorian Government

*“There’s never been a better time to be a worker with “special skills” or the right education because these people can use technology to create and capture value. There’s never been a worse time to be a worker with “ordinary skills” and abilities to offer because computers, robots and other digital technologies are acquiring these skills and abilities at an extraordinary rate.*

*- MIT Professors Brynjolfsson and McAfee from their seminal text “The Second Machine Age”.*



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## i. EXECUTIVE SUMMARY

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- The purpose of this field of study was to examine best practice in trade training in similar overseas markets, in particular the Red Seal and Journeyman's Certificates that exist in the USA and Canada where the building industry is a much larger yet comparable entity to Australia's building industry.
- Trade training in Australia has undergone enormous change over the last 20 years and is currently experiencing pressures to streamline and truncate apprenticeships to address the skills shortage in construction trades. This is sometimes occurring at the expense of traditional and higher level skills and therefore creating a vacuum of specialised skills in areas such as heritage and architectural work. There has also been a sharp increase in building defects over this period which also reflect declining standards in skills.
- By learning from the USA and Canada, Australia's building industry can adopt a broader view and forecast trends on how higher skills training can be achieved and still address current skills shortages not being met in specific areas such as heritage and traditional work. This could open up an area of trade training and create an industry within an industry through provision of a qualification that carries prestige across the wider community and is prized by those that obtain, or aspire to obtain, the qualification.
- In the province of Alberta (Canada) both the Northern Alberta Institute of Technology (NAIT) and Southern Alberta Institute of Technology (SAIT) participate in the Red Seal and Journeyman's program. This program requires students / apprentices to complete a practical skills examination prior to sitting their two final theory examinations which occur in consecutive days.
- Alberta's apprenticeship and industry training system has a holistic approach to developing a highly skilled and internationally competitive training system, something that is driven by industry and equally supported by government and education. Indeed all participants are encouraged to be part of the process.
- There are several layers that oversee the development of a robust training system and current industry relevant learning resources. Alberta's apprenticeship and industry training system relies on a network of industry committees, and include both local and provincial committees. All trade committees are composed of equal numbers of employer and employee representatives.
- The Provincial Apprenticeships Council (PAC) was set up by the Provincial Government Agency, for the purpose of administering the apprenticeship process. This Council allows industry, training organisations and other interested parties the opportunity to participate in the annual moderation and decision making process of the apprenticeship programs for the purpose of continual improvement. This process is broken down into specific areas/disciplines to avoid any dominance by individuals or organisations with a self-interested agenda. Participation is offered by way of application and invitation, with participants usually rotated in order to avoid any skewing or bias. All participants are considered equal, regardless of business or industry size or status.

The Fellow met with representatives from the USA and Canadian Governments, USA and Canadian colleges, private training organisations and academics. As a result of this valuable experience Brodie found that:

- Linking educators with industry through knowledge transfer partnerships create well rounded and balanced training programs targeted towards industry and future needs.
- True industry collaboration occurs when all pockets of the industry, regardless of size, are equally represented and have the same opportunities to provide insight and feedback on training.
- Innovation in education comes from a desire to connect the past with the future towards a common goal.

## i. EXECUTIVE SUMMARY

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- Government direction is that the industry must identify champions, structure collaboration and develop networks for innovation and implementation of new units of competency and post apprenticeship qualifications.
- Investment in the preservation of traditional skills incorporated into modern training has a wider community benefit through the sustainable preservation of history, coupled with the development and recognition of quality trades skills.
- Links and credit pathways from trade training into higher education provide greater career options and community credibility for tradespeople.

The Fellow aims to share these valuable lessons with relevant teaching networks, industry bodies, government and students within his own teaching practice the building industry

### **Major Recommendations**

- Construction and Property Services Industry Skills Council (CPSISC) integrate a pathway from Certificate III to a higher skills qualification 'Journeyman' as a post studies option that would satisfy registration requirements.
- Structure this proposed pathway with additional relevant units of competency, with the possibility of heritage qualifications.
- That Government provide leadership by:
  - » Adopting the concept and set up a structured approach to collaboration within the industry by identifying key stakeholders and funding an appropriate Working Group / industry organisation to investigate the feasibility of implementing a new / higher level qualification.
  - » Facilitating collaborative partnerships between industry and educational institutions for training package enhancement in construction.
  - » Developing a higher skills learning framework for clients, educators and industry for the existing and future workforce.
- Professional associations and peak bodies support a national approach to the concept of higher skills qualifications within the current learning framework.
- The Victorian Government acts as a pilot state for implementing a higher qualification, above the Certificate III level, that could be the conduit to mandatory trade registration.
- The Victorian Registration and Qualifications Authority (VRQA) examine and further investigate the positives of enforced apprentice advocacy so as to protect the welfare and education of apprentices.
- Introduce the concept of further developing a curriculum that complements the existing training package resources and content.
- Heritage Victoria formalise the recognition and identification process of tradespeople's qualifications with a view to developing a set of standards and guidelines as a first stage towards a Journeyman's / Master Carpenter qualification

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## ii. ABBREVIATIONS/ACRONYMS

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<b>AIA</b>	Architects Institute of Australia
<b>CCDA</b>	Canadian Council of Directors of Apprenticeship
<b>CPSISC</b>	Construction and Property Services Industry Skills Council
<b>VCTN</b>	Victorian Carpentry Teachers Network
<b>CBC</b>	Based Completion
<b>DACUM</b>	Developing a Curriculum Methodology
<b>DBU</b>	Domestic Builder Unlimited
<b>DOL</b>	Department of Labour
<b>GED</b>	General Education Diploma
<b>HESG</b>	Higher Education and Skills Group
<b>HIA</b>	Housing Industry Association
<b>ISS</b>	International Specialised Skills Institute
<b>MBAV</b>	Master Builders Association of Victoria
<b>NAIT</b>	Northern Alberta Institute of Technology
<b>NDW</b>	Naval Dockyard Williamstown
<b>OATELS</b>	Office of Apprenticeship Training, Employer and Labour Services
<b>RS</b>	Red Seal
<b>RTO</b>	Registered Training Organisation
<b>SAIT</b>	Southern Alberta Institute of Technology
<b>TP</b>	Training Packages
<b>TAFE</b>	Technical and Further Education
<b>TOWES</b>	Test of Workplace Essential Skills
<b>USA</b>	United States of America
<b>VRQA</b>	Victorian Registration and Qualifications Authority

## iii. DEFINITIONS

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### **Journeyman**

Used in the USA and Canada to describe an individual who has completed an apprenticeship and is fully educated and examined in their chosen trade for skills and knowledge to a specific industry standard.

### **Skills Enhancement**

Enhancement and improvement in skills, knowledge and practice not currently available or implemented in Australia and the subsequent dissemination and sharing of those skills and recommendations with the relevant Australian industry, education, government bodies and the wider community.

### **Red Seal**

The Red Seal Program is the Canadian standard of excellence for skilled trades. Formally known as the Inter-provincial Standards Red Seal Program, it sets common standards to assess the skills of tradespersons across Canada. Tradespersons who meet the Red Seal standards receive a Red Seal endorsement on their provincial/territorial trade certificates.

Red Seal is the nationally recognised endorsement of a tradesperson who has trained and is qualified to work inter-provincially to a national standard that is above apprenticeship level.

The Red Seal Program was created following the first National Conference on Apprenticeship in Trades and Industries, which was held in Ottawa in 1952. Participants recommended that the provinces and territories ask the federal government to work with their apprenticeship committees and officials to prepare analysis of skilled trades.

The program has evolved over the years. Today, it is a forum for inter-jurisdictional collaboration in support of developing a certified, highly skilled and mobile trades workforce in Canada.

The Red Seal endorsement is the national standard of excellence for skilled trades and is widely recognised and respected by industry and trades both nationally and internationally.

The Red Seal is administered by the Canadian Council of Directors of Apprenticeship (CCDA) with provincial and territorial authorities administering Red Seal exams in their jurisdictions.

### **Stacked dado**

A dado set or dado blade is a type of circular saw blade, usually used with a table saw or radial arm saw, which is used to cut dados or grooves in woodworking.



# 1. ACKNOWLEDGEMENTS

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Robert Brodie thanks the following individuals and organisations that have generously given of their time and their expertise to assist, advise and guide him throughout this Fellowship program.

## **Awarding Body – International Specialised Skills Institute (ISS Institute)**

The International Specialised Skills Institute (ISS Institute) is an independent, national organisation. In 2015 it is celebrating twenty-five (25) years working with Australian governments, industry education institutions and individuals to enable them to gain enhanced skills, knowledge and experience in traditional trades, professions and leading edge technologies.

At the heart of the ISS Institute are our individual Fellows. Under the Overseas Applied Research Fellowship Program the Fellows travel overseas. Upon their return, they are required to pass on what they have learnt by:

- Preparing a detailed report for distribution to government departments, industry and educational institutions
- Recommending improvements to accredited educational courses
- Delivering training activities including workshops, conferences and forums.

Over 300 Australians have received Fellowships, across many industry sectors. In addition, recognised experts from overseas conduct training activities and events. To date, 25 leaders in their field have shared their expertise in Australia.

According to Skills Australia's 'Australian Workforce Futures: A National Workforce Development Strategy 2010'.

*Australia requires a highly skilled population to maintain and improve our economic position in the face of increasing global competition, and to have the skills to adapt to the introduction of new technology and rapid change. International and Australian research indicates we need a deeper level of skills than currently exists in the Australian labour market to lift productivity. We need a workforce in which more people have skills and knowledge, but also multiple and higher level skills and qualifications. Deepening skills and knowledge across all occupations is crucial to achieving long-term productivity growth. It also reflects the recent trend for jobs to become more complex and the consequent increased demand for higher-level skills. This trend is projected to continue regardless of whether we experience strong or weak economic growth in the future. Future environmental challenges will also create demand for more sustainability related skills and knowledge across a range of industries and occupations.*

In this context, the ISS Institute works with our Fellows, industry and government to identify specific skills and knowledge in Australia that require enhancing, where accredited courses are not available through Australian higher education institutions or other Registered Training Organisations. The Fellows' overseas experience sees them broadening and deepening their own professional knowledge, which they then share with their peers, industry and government upon their return. This is the focus of the ISS Institute's work.

For further information on our Fellows and our work see <http://www.issinstitute.org.au>.

Brodie also thanks the former CEO (Bella Irlicht AO), current CEO (Louisa Ellum) and staff (Ken Greenhill, Paul Sumner, Fiona Waugh and Danielle Cull) of ISS Institute for their assistance in the planning and development of his Fellowship and completion of this report.

## 1. ACKNOWLEDGEMENTS

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The Higher Education and Skills Group (HESG), Department of Education and Training, Victorian Government, is responsible for the administration and the coordination of programs for the provision of training and further education, adult community education and employment services in Victoria, and is a valued sponsor of the ISS Institute. The Fellow would like to thank them for providing funding support for this Fellowship.

### Supporters

The following organisations and individuals were involved in and supported Brodie's Fellowship application and submission:

- Joan Whelan, Project Manager, Construction and Property Services Industry Skills Council (CPSISC)
- David Cameron, Johns Lyng Group
- Geoff Parkinson, Chisholm TAFE (VCTN)

### Employer support

Swinburne University of Technology has generously supported Brodie by providing him with time to undertake Fellowship travel and additional mentoring as required. The Fellow particularly acknowledges:

- Terry McEvoy, Team Leader, Built Environment
- Clive Linley, Trades Trainer, Remote Indigenous Projects
- Therese McAleese, Director of Learning, Melbourne Polytechnic

## 1. ACKNOWLEDGEMENTS

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- Greer Sisson, Secretary of Apprenticeship, Iowa State Department of Labour
- Andrea Clarke, Department Coordinator - Industrial Technologies, Kirkwood Community College
- John DeLany, Training Coordinator, Five Rivers Carpenters Joint Apprenticeship and Training Committee Inc.
- Barry Kuchera, Carpentry Teacher, Kirkwood Community College
- Andrew Panmenter, Professor Carpentry and Joinery Heritage Program, Algonquin College (Perth Campus)
- Chris Hahn, Head of Apprenticeship Training, Algonquin College (Perth Campus)
- Josh Silver, Learning Manager - Heritage Retrofit Carpentry, Holland College
- Paul Roberts, Chair, Advanced Woodworking Programs
- Allan Jensen, Associate Chair, Advanced Woodworking Programs
- Ken Nelson, Manager Industry Programs & Standards, Apprenticeship and Industry Training
- Ed Braun, Senior Manager Industry Programs & Standards, Apprenticeship and Industry Training
- Ed Giffen, Apprenticeship Consultant, Apprenticeship and Industry Training
- Dan Weinert, Academic Chair, Wood Trades School of Construction, SAIT Calgary (Alberta, Canada)
- Andree` Evans, Editorial Consultant, Mornington Peninsula

## 2. ABOUT THE FELLOW

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**Name:** Robert Brodie

**Employment:** Carpentry Teacher, Built Environment, Swinburne University of Technology

**Qualifications:**

- Certificate IV in Training and Assessment, Swinburne, 2012
- Certificate III in Building Construction (Carpentry) NMIT 2012
- Diploma of VET, Swinburne University, 2009
- Certificate IV in Training and Assessment (BSZ), RMIT, 2004
- Indentured Tradesman, Naval Dockyard, Williamstown
- Licenced Domestic Builder Unlimited DBU-4203

**Memberships:**

- Victorian Building Authority
- Carpentry Australia

**Short biography:**

Robert Brodie originally trained at the Naval Dockyard Williamstown (NDW) as a Carpenter and Joiner, commencing in 1980 where he learned a wide variety of both traditional and contemporary trade skills. This higher skills centric environment was where Brodie learnt all aspects of his trade, fostering both passion and pride in his work. Brodie has produced many private pieces of work including a violin, a traditional chess set and many furniture pieces.

Brodie completed his trade schooling at the Newport College of TAFE from 1980 to 1982, achieving high proficiency in all year levels. After leaving NDW, Brodie worked as a contract carpenter for several years which allowed him to gain further industry experience. Brodie later obtained his Builders Licence (DBU) where he owned and operated a successful building business specialising in architectural additions and renovations for a number of leading Melbourne architects.

In 1991 Brodie was awarded a HIA Top Homes Finalist for one of the properties that he built in the category of Additions and Renovations; a property designed by the then Executive Director of the Architects Institute of Australia (AIA) Peter Clarke.

Brodie then branched out into the project management of larger and commercial projects to further broaden his experience whilst also continuing with his domestic building business. These projects included high-density multi-unit construction and aged care facilities. In 1997 Brodie took a position as a senior estimator and consultant at Johns and Lyng Builders where he specialised in insurance reinstatement of domestic and commercial properties, and chartered consultancy for defects and rectification works.

In 2003, seeking a change in direction, Robert commenced teaching at Swinburne University of Technology in the Built Environment Department teaching apprentice carpenters as well as Design Diploma students. In 2006 Brodie focused his energies on the development of a flexible blended learning environment where the teaching and learning strategy was centered around self-paced learning in a fully flexible and online environment. This was the first of its kind in Australia and Brodie was awarded the Swinburne Maurie Curwood Fellowship for Teaching Excellence in 2007 for recognition of his work

## 2. ABOUT THE FELLOW

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on this project. This model became the benchmark for flexible trade training in Victoria. Robert has presented on this model at many colleges and institutes, including at the 2007 Construction Teachers State Conference.

Brodie is an active member of the VCTN, providing validation and moderation of the Construction Industry Training Packages (TP). Brodie is also an active member of the CPSISC e-learning co-operative and Carpentry and Joinery Co-operative focusing on trade training and training packages.

## 3. AIM OF THE FELLOWSHIP PROGRAM

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- To research the qualification requisites and processes for employing Carpentry Apprentices and the employer involvement in the training process.
- To research government and industry input into training and its effect on quality.
- To research how 'job ready' apprentices are after completing accelerated training.
- To research and observe the Provincial Red Seal Certificate that tradespeople require to work in provinces other than where they live and trained in Canada.
- To research the Carpentry Journeyman's qualification in the USA.
- To investigate links between higher trade qualifications and skill success factors within the industry.
- To research and observe the Journeyman's Certificate for carpentry qualification implementation and its positive effects on the quality of training in the USA and Canada.
- Promote the concept of higher level qualification of both skill and knowledge, such as a Journeyman's Certificate, for the carpentry qualification in Australia.
- Develop the framework for a pilot Journeyman's Program, including recognition of higher achievement above the existing trade qualification, providing much needed credibility and prestige to the trade qualification and encourage young tradespersons to aspire to higher goals.

## 4. THE AUSTRALIAN CONTEXT

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Over the last ten years there has been a decline in skills and expertise of new tradespersons and apprentices in the building and construction industry due to various factors.

Trade training of apprentices, historically delivered at TAFE, is under pressure from employers willing to trim the off-site training component due to financial constraints through the engagement of private RTOs.

Reductions in funding for off-site training, coupled with the disparity between the cost to deliver training by private for-profit RTOs and public providers, represents a threat to quality off-site training. This threatens both the survival of quality trades training and the preservation of the future skills base.

Qualifications have also been trimmed in their breadth and scope and there are no minimum classroom delivery requirements against nominal hours. In addition teacher / student ratio requirements are also not stipulated. These factors are leading the industry toward a skills vacuum; in an effort to address skills shortages created by policies of the past, standards of training may have deteriorated..

A higher skills qualification could be the first step towards the restoration of an eroding skills base and provide young tradespeople with a higher goal to aspire to. It could also provide a pathway into skills training for which there is currently no defined career pathway.

At present in the field of carpentry there is no technical skill qualification higher than the Certificate III level.

The Certificate III in Carpentry can now be obtained in as little as two years in the current environment with competency based completion (CBC), effectively qualifying an apprentice as a tradesperson in half the time that was previously set by the training authority. CBC was introduced on the 1st of January 2011 into the present system of apprenticeship training.

A higher level skills and knowledge qualification, such as a Journeyman's Certificate for the carpentry qualification in Australia, could provide a tradesperson with the option to become a 'Master Carpenter' and provide some much needed credibility and prestige to the trade qualification. This would encourage young tradespeople to aspire to higher goals and also contribute to the raising of standards throughout the industry over a period of time.

### Heritage skills

There has been no significant move within the VET sector to identify or preserve the existing but aging skills base in the heritage area. These types of skills are the foundation upon which a Journeyman qualification in Australia could be based. This approach could draw together contemporary building knowledge, skills and techniques and combine it with sound traditional knowledge and skills base.

In the current training environment further development and refinement of existing units of competence that reflect this need could be a good first step towards preserving and developing these skills for future generations.

Developing existing specialised elective units from the current training package, in addition to capstone skills and knowledge testing, could comprise a Journeyman status style qualification.

An example is the 'Refurbish timber sashes to window frames CPCCCA3011A' unit; a unit that may require more specified parameters and criteria to achieve the desired outcome. There are also some existing Heritage units in the CPC40611 - Certificate IV in Building and Construction (Specialist Trades) selection that are structured around the process of restoration in a heritage context.

## 4. THE AUSTRALIAN CONTEXT

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*“What is clear is that the required heritage, or traditional, skills can only be developed by tradespeople who are competent operators and skilled in the contemporary trades. The foundation of strong technical trade skills must be laid before more advanced or specialised skills can be developed and used”.*

*“There is also concern within the sector that the workforce with the necessary heritage trade skills is aging and that strategies are not in place to refresh and bolster the workforce and the available skills. Heritage trade skill shortages are, indeed, a worldwide problem.”<sup>1</sup>*

### SWOT analysis of trade training in Australia

#### Strengths

- Supported by grassroots industry.
- Established training facilities.
- Strong Government support and incentives.

#### Weaknesses

- Currently there is no final exam or ‘yardstick’.
- No current ‘Capstone’ testing to establish an across the board standard.
- RTOs are not included in project reference groups for TP development.
- No targeted or structured industry consultation exists at grass roots level.

#### Opportunities

- Linking with international leaders in vocational education.
- Integrating existing systems with overseas models and training innovations.
- International recognition of qualifications in construction.
- Developing new skills and knowledge for Australian qualifications.
- Australia can emerge as an international leader in trade training.

#### Threats

- Private RTOs may undermine quality training with dubious assessment practices.
- Skills shortage pressures destabilise training package development.
- Insufficient representation and consultation from grassroots industry.
- Large industry businesses skew perceived industry needs.
- Continual erosion of mandatory training requirements will lower standards over time.
- Lack of RTO input in training package development will not provide a balanced outcome

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<sup>1</sup> Georgie Cane, CPSISC Heritage Trade Skills Report, 2012.



# 5. IDENTIFYING THE SKILLS AND KNOWLEDGE ENHANCEMENTS REQUIRED

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There are examples of areas in Australian industries where there are weaknesses in innovation, skills, knowledge, experience, policies or formal organisational structures; resulting in diminished support for the ongoing successful development and recognition of individuals in a particular sector.

The focus of all ISS Institute Fellowships is on international applied research and investigation by Australians. The main objective is to enable enhancement and improvement in skills, knowledge and practice not currently available or implemented in Australia and the subsequent dissemination and sharing of those skills and recommendations throughout the relevant Australian industry, education, government bodies and the community.

This Fellowship provided Brodie with an opportunity to examine:

- The administration of trade training in parts of the USA and Canada
- How to identify the skills and knowledge that should/could be included in Australian Building and Construction qualifications (CPC08).

The Fellow researched building and construction training and identified the following needs:

- A sophisticated level of industry collaboration and involvement, structured and overseen by Government
- Community respect and recognition for qualified tradespeople
- Recognition and credit of academic achievement through education for those aspiring to higher academic goals
- A balanced mix of all stakeholders
- A continual improvement approach to training resources and direction.

## Skills Enhancement

The primary goal of this report is to promote the introduction of a qualification that is above Certificate III in Carpentry and which has a higher skills focus. This will require:

- Developing new units of competence targeted towards higher trade skills
- Redesigning existing units to allow for "higher levels" of achievement / completion within each unit
- Developing defined career pathways into vocational teaching and builder's registration.

If achieved, this new qualification will provide a much needed boost to the existing trade qualification and could become the standard requisite for career pathways into trade training and building registration/licencing.

Tradespeople certification in recognition of their higher skills will provide industry status and generate an environment of higher achievement. More specifically this would allow for:

- The introduction of stand-alone capstone testing as a final certification requirement will present higher achieving aspirants with a pathway that is distinction from standard qualifications (which only allow for pass or fail)
- The creation of pathways into industry related higher education via course credit and recognition.
- Strictly controlled and administered capstone testing at only public providers (TAFE) will remove the incentive to short-cut training for monetary gain.

## 5. IDENTIFYING THE SKILLS AND KNOWLEDGE ENHANCEMENTS REQUIRED

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The Canadian Red Seal examination and endorsement, combined with the final year capstone skills tests, provide industry and employer confidence in the skills and knowledge levels of entry level tradespeople.

Heritage skills training should be incorporated into existing carpentry training in Australia to preserve the existing skills base and provide a broader future skills base for the preservation and restoration of architectural history. The existing heritage and specialised skills base is decreasing due to an ageing workforce and no clear or defined pathway for generational transfer of these skills and knowledge. To address this, it is noted that:

- The introduction of specific and targeted heritage units can be used to build upon existing fundamental trade skills and knowledge
- Heritage skills provide a greater breadth of transferable knowledge and skills, along with finer attention to detail and client requirements. This will raise the overall standards of tradespeople within the industry.

The introduction of an integrated curriculum development system between vocational educators and industry will provide the required balance needed for a valued qualification, and it is noted that the:

- Canadian ILM system initiative is a good example of a balanced and systematic approach to curriculum development and continual improvement
- Introduction of mandatory delivery hours will provide students with greater opportunities to further their industry knowledge without compromise and restrict the dubious assessment practices of some private RTOs.

## 6. THE INTERNATIONAL EXPERIENCE

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The Fellow used his experiences in the USA and Canada to identify and explore the approach taken by their governments, industry and training providers to provide high quality and respected trade training in the field of carpentry.

As part of his international experience the Fellow:

- Met with representatives in the Department of Labour in Iowa (USA)
- Interviewed personnel from both community colleges and private training organisations in the USA
- Attended Universities and Polytechnics in various provinces in Canada, observing a structured course based on real projects engaging industry involvement.

### Visit One: Des Moines, Iowa (USA)

#### Contacts:

Greer Sisson, Secretary of Apprenticeship, State Department of Labour (Iowa).

#### Objectives:

To examine how the apprenticeship system works in the USA and what level of government support exists for both employers and apprentices.

To discover how industry supports the apprenticeship system.

#### Discussion and Observations:

From a financial perspective, the Australian Government support of the apprenticeship system is in many ways ahead of the USA. However, the support and buy-in factor by USA employers and other sponsors is far greater. There is a great deal of value placed on the training of an apprentice and an apprenticeship is a much sought after opportunity in the USA. There is a minimum entry age of 16 years; however it is more preferred that an applicant apprentice be 18 years old with a General Education Diploma (GED) entry.

An apprenticeship is a volunteer system/program for Union and non-Union employers. The state of Iowa has the highest numbers of registered apprentices in the USA and all apprentices are covered under the 'National Apprenticeship Act', which was first enacted in Congress in 1937 and is also referred to as 'The Fitzgerald Act' or simply 'The Act'.

There are 22 Standards for a Registered Apprenticeship with all designed to create the structure, not content, of the registered apprenticeship learning programs. Employers and worker organisations that sponsor the learning determine the content, meaning that only programs that meet the standards can be registered. The USA Department of Labor's Office of Apprenticeship Training, Employer and Labor Services (OATELS) publishes the overall standards for developing programs and registers the programs as having met those standards.

There are more than 32,000 program sponsors in the USA representing 250,000 individual employers that offer Registered Apprenticeships to more than 480,000 apprentices across a number of industries including construction.<sup>1</sup>

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<sup>1</sup> DTI Research and Evaluation Associates for the Office of Apprenticeship Training and U.S. Department of Labor, A Brighter Tomorrow, Apprenticeship for the 21st Century, P. 7

## 6. THE INTERNATIONAL EXPERIENCE

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In the state of Iowa the apprenticeship is so highly valued by both the employer/sponsor and the apprentices themselves that the attrition rate is as low as around 8 per cent. Whereas attrition rates in Australia are far higher.

Pay progression is structured as a percentile of the Journeyman's wage, and applied at each level achieved. Journeyman status is achieved when all on and off-the-job training is completed.

Apprenticeships are industry driven and consist of a dual component comprised of on and off-the-job training; just as is undertaken in Australia. Typically the apprenticeship is 8,000 hours in total, or 2,000 hours per year level, with a minimum of 144 hours of schooling per year.<sup>2</sup> The USA Department of Labour monitors this attendance stringently and enforces it if necessary, with this process referred to as quality assessment of school attendance.

### Observations:

- Linkages between apprenticeships and other training programs and qualifications exist.
- A positive image of apprenticeship training, as a desirable and credible post-secondary education option that leads to a bright future and prosperous career, is promoted to the community.
- A four tiered approach to training supports the existing apprenticeship training model with pre-apprenticeship, apprenticeship specialised training for apprentice instructors, and skills upgrade training.

### Key lessons:

Careful monitoring of Apprentices' progress by the Department of Labour (DOL) throughout the duration of the apprenticeship forms a key part of the apprenticeship process. This maintains a set of expectations and standards by all parties involved. The Union support for the system allows apprentices to flourish in high-quality well-equipped facilities. The minimum attendance requirements for trade school is enforced via the quality assessment of school attendance; a process which eliminates dubious assessment practices which in turn maintains the standard of teaching and learning.

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<sup>2</sup> DTI Research and Evaluation Associates for the Office of Apprenticeship Training and U.S. Department of Labor, A Brighter Tomorrow, Apprenticeship for the 21st Century, P. 8

### Visit Two: Cedar Rapids, Iowa (USA)

#### Contacts:

- Barry Kuchera, Carpentry Teacher, Kirkwood Community College
- Andrea Clarke, Department Coordinator, Industrial Technologies
- John DeLany, Director, Five Rivers Carpenters Joint Apprenticeship and Training Committee

#### Kirkwood Community College - contact:

- Barry Kuchera, Carpentry Teacher, Kirkwood Community College



*Kirkwood Community College*

#### Kirkwood Community College – discussions and observations:

Kuchera is the Program Coordinator and Teacher of Carpentry at Kirkwood Community College. Kirkwood offers a pre-employment program that is a 12 month full-time program that serves as a pathway to employment, and there are limited places in each intake year.

The course is designed to dovetail into further studies in the construction field, such as the Diploma in Construction. Credits are also given against apprenticeship trades schooling.

#### Kirkwood Community College – key lessons:

- In the USA apprenticeships are more difficult to obtain, as semi-skilled labour is more commonly used. Journeymen tradespeople are usually selected to oversee construction projects.
- The benefits of Journeymen qualifications are in securing employment in a very competitive labour market.

#### Five Rivers Carpenters Joint Apprenticeship and Training Committee Inc - contact:

John DeLany, Director, Five Rivers Carpenters Joint Apprenticeship and Training Committee Inc.

#### Five Rivers Carpenters Joint Apprenticeship and Training Committee Inc - objectives:

To observe both how a private training organisation conducts training, as compared to government supported educational facilities, and where Union support successfully interacts with industry and education.

John DeLany is the Director of the Five Rivers, a private RTO that delivers training to carpentry students that have registered apprenticeships with the Department of Labour. Registration is not compulsory but is recommended. Five Rivers also deliver advanced building courses aimed at higher progression, such as in supervisory and project management roles, within the industry.

Five Rivers is a private organisation and student resources are well supported by the Chicago Carpenters Union training arm. This meeting provided the Fellow with an opportunity to inspect the Union training facility in Chicago (Illinois).

## 6. THE INTERNATIONAL EXPERIENCE

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The Chicago training facility is state of the art and extremely well supported by industry with equipment and physical resources. This level of support is rarely seen in Victoria and Australia, and demonstrates the level of commitment that industry (via the Chicago Carpenters Union) has made towards trade training. It boasts a sophisticated modern facility in a large multi-level purpose built building that can simulate domestic and commercial workplaces on a large scale.

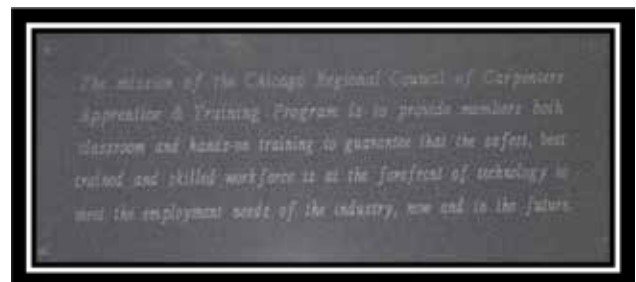
Sophisticated practical projects of various types ensure that the apprentice receives the best possible training and is given the skills and knowledge required to uphold the high standards set by the industry.



*Multi level scaffolding project and assessment*

### **Industry Pride**

The Chicago Carpenters Union are extremely proud of their history and achievements, and also has a strong vision for the future. The Union is committed to the rights and responsibilities of both the apprentices as future industry professionals, the quality of the training they deliver and the quality of the work expected to be produced by its graduates.



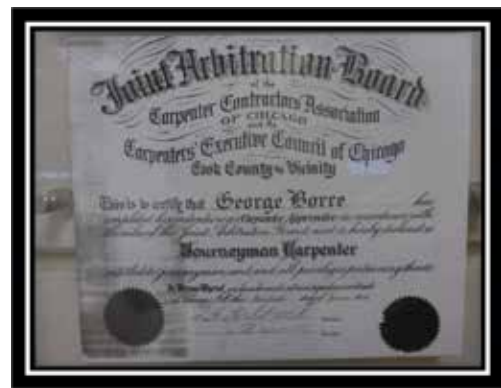
*Mission statement "Foundation Stone"*

## 6. THE INTERNATIONAL EXPERIENCE

The Carpenters Union has developed a Bill of Rights and Responsibilities as a code of ethics for their members and graduates to live and work by.



*Council of Carpenters motto*



*Carpenter Union 'Bill of Rights' (left), Journeyman Certificate (right)*

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### Visit Three: Perth, Ontario (Canada)

#### Contacts:

- Chris Hahn, Dean, Algonquin Heritage College, Perth Campus
- Andrew Pamerter, Algonquin Heritage College, Perth Campus

#### Overview:

Algonquin College has a number of campuses delivering carpentry and has been training students in skilled trades for over 45 years.

Out of approximately 20,000 students attending Algonquin College, 1,900 are enrolled in skilled trades programs.

The Perth Campus of Algonquin, also known as the Heritage Institute, delivers specialised training in heritage carpentry and stone masonry.

By 2020, 50 per cent of Canada's current skilled workforce will retire, creating severe shortages in every trade. In the next two decades, 40 per cent of new jobs will be in the skilled trades and technologies.



*Algonquin Heritage Institute, Perth Ontario*

#### Objective:

To identify and observe carpentry training within the heritage environment and examine:

- How the heritage program has contributed to trade training?
- Whether the heritage program graduates are preferred over apprentices?
- How the heritage program commenced?
- What the main drivers behind the introduction of the heritage qualifications were?
- What positive effects has the heritage program had on the industry?



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*Heritage Architectural Details*



*Traditional Log construction*

## 6. THE INTERNATIONAL EXPERIENCE

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*Traditional Log construction*



*Traditional Dry stack Heritage Stone arch work*



*Heritage Style 'Cubbies'*

### **Outcomes:**

The Fellow met with Hahn and Pamerter, both of whom provided valuable insights into the Canadian heritage trade training experience.

The heritage program has been acknowledged as equivalent to two of three stages of in-school training for apprenticeship certification – dependent on the judgement of individual apprenticeship counsellors. Incidentally, this was recently changed to one stage if the student already possesses a college level trade diploma.

Algonquin is still looking for exemption exams for the stages of apprenticeship training and is seeking more consultation with government as the Provincial College of Trades comes on board.

The Fellow discussed the heritage carpentry and joinery program with both Hahn and Pamerter and discovered that:

- Algonquin College's heritage carpentry and joinery program is targeted at students who are interested in the preservation, renovation, and restoration of historical architecture in Canada. This two-year Diploma program combines new construction technology with traditional carpentry techniques.
- The heritage program originated from a federal government 'Main Street' program initiative which was piloted in the 1980's.
- The 'Main Street' program is the redevelopment of the main street of Perth (Ontario) and the initiative attracted professionals and trades people to the town to execute the works.
- Partnerships developed with Algonquin College and the heritage carpentry and joinery program was born.
- The masonry and advanced housing programs followed soon after, driven by both instructors and graduates of the carpentry program.
- There is a focus on contemporary construction techniques, traditional carpentry and preservation techniques needed to produce a high quality standard of work demanded in the field of heritage carpentry.
- The program is broken down into two distinct areas, the first year focusing on modern construction practices (such as framing roofing and finishing) while at the same time developing the underpinning skills required for general woodworking and joinery. These fundamentals create the base needed to

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complete the second year during which students study historical Canadian architecture, architectural joinery, millwork and traditional timber framing and log construction building methods. These are all skills and knowledge that are in high demand in the field of heritage carpentry.

- The heritage program provides a safe environment for risk-taking, skill development and problem-solving which contributes to the development of a confident, creative graduate who has an appreciation for the craft of carpentry and the value of the historical skills, materials and techniques.
- The general feel is that the training approach used here contributes greatly to trades training.
- Heritage graduates are ready to take on a wide range of responsibilities on any work site.
- There is a lack of empirical evidence that this is superior to training that they would receive elsewhere, but anecdotally they appear to be achieving this.
- Dependent upon the field or employer, heritage graduates have been found to be better prepared for a variety of tasks, especially with respect to architectural details, working with drawings, non-standard construction and problem-solving. The graduates tend to be efficient, thoughtful, creative and empathetic to the building.
- With a progressive approach to learning Algonquin College integrates technology into the classroom whilst emphasising traditional hand skills and craftsmanship
- Construction Carpentry, Advanced Housing and Carpentry and Joinery and Heritage courses offer an advanced standing of 60 credit hours (of a minimum total of 120 semester credit hours) towards a four year Bachelor of Business Administration – General Business degree.

### Key lessons:

- The Canadian and Provincial Governments are investing in skills education and preservation by creating heritage qualifications in regional and metropolitan areas throughout Canada.
- The importance of these skills and education cannot be understated.
- The positive effects the heritage program has had on the industry include:
  - » Skilled, motivated graduates
  - » Skills in increasingly rare fields and tasks
  - » Promotion of these skills within the heritage community
  - » Resources for heritage community through faculty, students, and resource collections.

*“I believe that the heritage programming at Algonquin College has increased the profile of the tradesperson on the job site – the importance of skilled workers to effectively execute the specifications and details outlined by the professionals and clients. We attract a largely well-educated highly motivated student body which contributes positively to the project and work site. These are trades people by choice, often craft oriented rather than installers or trades people by default.”*

- Andrew Pamerter (Algonquin Heritage College).

*“This two-year Ontario College Diploma program combines new construction technology with traditional carpentry techniques to consistently produce graduates with a skill set that sets them up to build history in the challenging field of custom and heritage carpentry.”*

- Chris Hahn (Algonquin Heritage College).

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### **Prestonvale United Church building**

Restoration project 2014 - restoration of windows, frames, mullions and sills and some interior work with flooring. Now used as community hall for musical performances, weddings, suppers for community functions. etc.



*Window restorations*

## 6. THE INTERNATIONAL EXPERIENCE

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### Case Study: Ottawa City Buildings

An examination of Ottawa City Buildings reveals a number of benefits including:

- Heritage graduates are in high demand for restoration and preservation projects in the nation's capital Ottawa.
- Ottawa has a continuing program in this area to preserve and maintain its heritage.
- Main Street Inc. is the name of a community revitalization program begun by the National Trust for Historic Preservation in the late 1970s.
- Costly remedial works can be avoided, with early preservation techniques applied and a sustainable heritage retrofit approach.
- Restoration work at Rideau Hall, the Official Residence of the Governor General of Canada took place in 1999 with students from Algonquin under the guidance of conservation Architect Francois LeBlanc.



*Rideau Hall, Ottawa*

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*Matheson House ,Perth Ontario National Historic Site and local museum. Window restoration by Algonquin carpenters*

### Visit Four: Prince Edward Island (PEI), Canada

**Contact:**

Josh Silver, Learning Manager, Holland College, Prince of Wales Campus.

Josh is the Learning Manager and Curriculum Developer for the Heritage Retrofit Carpentry Program located in the new Centre for Applied Science and Technology building of Holland College in Charlottetown. Josh is a Red Seal Carpenter and has a Bachelor of Science in Natural Resources and Forestry having practiced as an urban forester in Ohio, California, Louisiana and New Mexico.

Josh worked as a carpenter and owned a contracting business in Cleveland for several years, working largely on historical homes on the national Heritage Registry prior to moving to Prince Edward Island, Canada.<sup>3</sup>



*Robert Brodie (Fellow) and Josh Silver*



*Holland College Prince of Wales Campus*

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<sup>3</sup> <https://hollandcollege.wordpress.com/>

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### Course overview:

The Holland College offers a retrofit heritage carpentry program. The program is full time and runs for nine months. The focus of the program is sustainable carpentry practices within a heritage environment. Participants develop the skills and knowledge that are critical to the preservation of the rich heritage that the provincial buildings offer at the home of Canadian confederation. Many buildings in this area face the prospect of abandonment in the future if they are unable to be retrofitted to current and future standards in thermal performance and livability.

This course explores the need to adopt modern technologies and methods to replicate and produce heritage sensitive and consistent outcomes. A strong emphasis on the history and architectural styles of building is part of their program and identified styles and features are carefully recorded and archived for future reference.

This course is a full-time one and, upon completion, credit is given towards apprenticeship requirements. The province of Prince Edward Island has adopted the individual learning modules system of the Alberta province as they are better resourced by their provincial government.

The heritage retrofit carpentry program is an intensive nine month program of both on and off-site training. The Holland College of Charlottetown (Prince of Wales Campus) is specialising in the preservation of the heritage trades and in particular carpentry. The province of Prince Edward Island has a significant amount of heritage buildings that the city wishes to preserve. Students apply from all areas (provinces), including international students, to participate in this program. There is a heavy emphasis on the growing demands within the building industry to provide buildings that are sufficiently energy efficient to meet the future needs of occupants and users of these building, whilst still maintaining their heritage features and appeal.

Canada is a country of wild extremes in climate where temperatures can vary from the mid to high 30 degree Celsius in summer and down to temperatures of minus 40 degrees Celsius. With that in mind the challenge that has been laid down is to develop ways of retro fitting buildings and replicating heritage features using both modern and traditional methods before the building become uninhabitable. During the colder months the fiscal demands of heating a building becomes untenable. Alternative means of maintaining these precious buildings to suit the heritage of the area is being actively sought.

Participants of the carpentry program are intensively trained in all aspects of carpentry, as well as a number of associated areas. Candidates are eligible to sit the Red Seal examinations at every stage of their training when appropriate. To obtain Red Seal endorsement a candidate must sit or write an externally set capstone type examination for each year level. In total there are five tests conducted prior to being awarded Red Seal endorsement.

The tests consist of various question types and cover a number of sections. Each test consists of up to 150 questions ranging from complex scenarios that require a sound knowledge of method and procedure, as well as arithmetical calculations.

Much like the Australian training packages there are units of competency or bites of learning that are studied and practiced. Questions from each of these categories form part of each level of the Red Seal examinations. There are strict protocols around the Red Seal testing limiting the number of attempts and predetermined pass rates. If a candidate fails their third attempt at any level an interview process is set up to identify the reasons and any extenuating circumstances that needed to be addressed. The examinations themselves are not open book and generally take two to three hours.



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### Practical testing:

The student is required to undergo practical assessments during this period and is graded using comprehensive rubrics to validate the assessments. There is also a community service component to the course which is both part of the assessment and also assists in preserving the heritage styles of the province. Students must actively seek out and identify heritage features on buildings that are in poor repair or missing and successfully replicate the component providing a replacement piece for the property owner as well as documenting the particular style of the selected feature. Clear identification of these styles assist in the preservation of buildings with these features while simultaneously protecting the architect's style underpinning the design of the particular building.

The city of Charlottetown is the birthplace of confederation in Canada and is working towards a national heritage register where graduates from this and other similar courses are recorded. Strict stipulations of trained and competent personnel to student ratios on heritage restoration projects are observed. Charlottetown places a high regard for preservation of its heritage and the skills Canada needs to preserve and maintain its historic buildings.

One hundred per cent of 2014-2015 graduates were employed upon completion.



*Heritage architectural detail (above).*

*Holland College: Retrofit Carpentry workshop (below)*



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### **Key lessons:**

- The Canadian Government has a heritage register for various trades able to perform work to heritage standards on government owned buildings.
- Australian governments could model this approach to provide a pool of capable tradespeople and make it a condition of public infrastructure preservation and redevelopment, as a starting point.
- The importance of skills enhancement in these areas of trade training and education is pivotal to the future and sustainability of public and privately owned buildings.

### Visit Five: The Northern Alberta Institute of Technology (NAIT), Edmonton, Alberta (Canada)

#### Contact:

- Paul Roberts, Program Chair, Advanced Woodworking and Building Trades
- Allan Jensen, Associate Chair, Advanced Woodworking and Building Trades
- Dave Kulak, Instructor, Advanced Woodworking and Building Trades

Paul Roberts is an accomplished Journeyman. His career experience includes 37 years of experience in trade teaching and a further 10 in the building and construction industry.

#### Objective:

The Fellow met with Allan Jensen, Paul Roberts and Dave Kulak and they discussed the following:

- The Alberta apprenticeship training model where the completion of the course culminates in a final examination of the students' knowledge and skill with capstone type testing and practical examination of skills to transition into 'Journeyman' status.
- The NAIT program delivery strategy.
- Test of Workplace Essential Skills (TOWES).
- Apprentice course attendance and pay progression.
- Apprentice incentive programs.
- Exploration of the training support systems and observation of how stakeholders and partnerships contribute to the training experience.
- Government support, funding and cost break downs
- Skill shortages.

#### Outcomes:

- The Northern Alberta Institute of Technology (NAIT) carpenter program operates using traditional classroom delivery using the individual learning modules (ILM) as the text resource, where apprentices participate in two months on-site and 10 months off-site learning per year underpinned by these units. There are approximately 40 units per year level and there are four year levels as set down in the Apprenticeship and Industry Training Act.
- The Registered Training Provider (RTO) is funded by 'Apprenticeship' (government) for seats, to a minimum number per year (approx. 240 people) with a current enrollment of 900. Seats above the minimum are funded per person or 'seat' to an amount less than the total of the initial funding divided by the minimum.
- The funding cost breakdown per year:
  - » \$800 contribution by the student to the college
  - » \$2,500 by Provincial Government ('Apprenticeship')
  - » \$2,500 unemployment benefit.
- Apprentices receive an 'Apprenticeship Incentive Grant' from the Federal Government to the amount of \$1,000 for each of the first two years and \$2,000 upon successful completion of the Red Seal examination.

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- Provincial examinations are conducted in addition to Red Seal examinations.
- A final year practical examination, in addition to a theory exam, is moderated by a committee made up of stakeholders in training across the province and marked or graded externally against a set of predefined parameters as a marking guide. Sections of the piece are graded by different assessors focusing on specific areas and criteria.
- Red Seal examination:
  - » Is broken up into six sections comprising a total of 100 questions, with each section weighted and broken into tasks with several questions per task area. The examination length is four hours and is externally conducted with a minimum 70 per cent pass rate required.
  - » Questions are all multiple choice but of various levels ranging from basic recall to more complex scenario based questions where a combination of skills are applied to produce the answer. These are typically codes-based applications combined with arithmetical problems.
  - » Critical thinking questions also form part of the examination where a series of parameters are given as a complex question
  - » Questions for the test bank are developed by a committee made up of college, industry, Apprenticeship and specialist writer representatives who are drawn from all Provinces. No one participant from any sector has access to all of the questions to protect the integrity of the examination. There are five versions of the Red Seal examination. A specific training week is set aside for the production of the question banks
  - » Each year level (period) students complete the required amount of ILMs to complete his or her year level. At the completion of the ILMs a capstone style examination is sat and is externally set. These capstone tests contribute towards the inter-provincial qualification that allows one to become a Red Seal qualified carpenter.
  - » Training consists of 1,600 hours per year level, broken down into 240 school hours and 1,360 hours of on-the-job training. Apprentices need to complete these hours as a minimum per year level, however if they are working additional hours in overtime they will get these hours credited towards their on-the-job training component.
  - » Those apprentices that participate in a pre-apprenticeship program are eligible to 'write' the first year inter-provincial examination to gain entry to the next year level after twelve months and have hours (1,600) credited towards their total required hours.
  - » Strict adherence to the attendance of the pattern is observed with a maximum of 18 hours of absence allowed prior to cancellation. Reinstatement can take place after negotiation with 'Apprenticeship', the government (provincial) body that administers apprenticeships in Alberta.
  - » School consists of a six hour day, typically 7am to 2.30pm, and the full 240 hours is completed in eight consecutive weeks.
  - » Apprentice wages are based on a Journeyman's wage by percentage:
    - » 1st year - 60%
    - » 2nd year - 70%
    - » 3rd year - 80%
    - » 4th year - 90%
  - » Pay progression is linked to the completion of the 1,600 hours plus a pass in the end of year examination.
  - » Test of Workplace Essential Skills (TOWES). There are, on average, 30 per cent of each class where students require improved reading skills. Reading skills are provided in the form of reading

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comprehension, work interpretation and inference reading; all of which is directed toward applied learning. Emphasis on the four basic ways of learning toward knowledge and skill development include: reading along with sight, hearing, enunciating and kinesthetic or hands-on practice.

### **Key lessons learned from NAIT:**

- Capstone style testing is a critical pathway to raising standards. This is demonstrated by both the Provincial and Red Seal examinations. Training standards are not compromised by the existence of such testing but enhanced. This removes the incentive of private providers to 'short-cut' training and dubious assessment practices for monetary gain.
- Strict monitoring of student attendance provides training providers with the stability required to provide consistent staffing, which leads to better resource development and student outcomes.
- Rigorous stand-alone examinations provide a standard across the board, from graduates to industry, which instils confidence in the training system.
- Australia is falling behind similar overseas markets in its approach to construction training with continual trimming of training and lowered minimum requirements.
- Australian government, educators and industry need to form one organisation or body to take account of the needs of the entire system to formulate and regulate the training of construction trades. The main focus of this is to ensure product quality and integrity and ensure the preservation of skills into the future and to prevent it defaulting to the lowest common denominator.
- Government, industry and educators need to collaborate on an equal footing to provide the guidance and structure required to implement a higher trade training qualification, such as the 'Journeyman', in Australia.
- Large educational institutions, with their depth of experienced staff and knowledge, are the key factor that will ensure the ongoing successful implementation of such a qualification in Australia.

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### Visit Six: Edmonton, Alberta (Canada)

#### Contact:

- Ken Nelson, Manager Industry Programs & Standards, Innovation and Advanced Education, Apprenticeship and Industry Training.
- Ed Baun, Senior Manager Industry Programs & Standards, Innovation and Advanced Education, Apprenticeship and Industry Training.
- Alberta Provincial Government, Canada

#### Objective:

The Fellow met with Ken Nelson and Ed Baun to discuss:

- The structure of the Apprenticeship Industry Training System
- The development and collaborative nature of the ILM initiative
- The monitoring of an apprentices progress and welfare
- Investigate what motivates industry to form a partnership with government and training organisations.

#### Outcomes:

- The Alberta Provincial Government has invested in creating learning materials and resources that are adopted across the country and in regional areas.
- Alberta Innovation and Advanced Education and the Apprenticeship training providers in Alberta are developing modularised learning materials (ILMs). These are full content modules based on the Alberta Apprenticeship course outline.
- These modules are intended to provide apprentices with standardised learning materials that are current, meet industry standards in Alberta (and across the country) and provide for enhanced and flexible options in the delivery and presentation of apprenticeship technical training courses.
- An ideal partnership between educators, industry and Government has been formed.

*"With respect to employer non-compliance with apprenticeship training, we do have a Client Services branch that works directly with employers to help them understand their responsibilities to train apprentices in a safe and productive environment. Our experience is that the vast majority of employers of apprentices do honor the spirit and intent of apprenticeship training, but of course they must adhere to the conditions set forth in the Trade Regulation and in other safety and employment standards legislation here in Alberta"*

(Ken Nelson, Manager Industry Programs & Standards, Innovation and Advanced Education, Apprenticeship and Industry Training)

- The Alberta Provincial Government has a holistic approach to the development of its apprenticeship training system. With its ILM system there is a sophisticated structure in place. There is an equal importance placed upon the role of all key stakeholders to develop unit resources that provide a standardised approach to training. These resources are widely available to all institutions delivering training effectively, thus delivering a level playing field.
- There is an emphasis on the system for the continual improvement and development of these resources. Alberta Apprenticeships has five distinct phases. In the initiative phase one follows a Developing a Curriculum Methodology (DACUM) to obtain valid feedback on the outline and

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condition of the course. This involves the following.

1. Needs analysis - course outline validation, planning and approval.
  2. Development and modification - acquiring, authoring, modifying and creating module content.
  3. Module production - material checked, organised and formatted.
  4. Module publication- prepare, assemble and print.
  5. Module evaluation - field test, assessment, and maintenance / revision.
- The course outline is expressed into approximately 150 competency statements that reflect the intent of the Provincial Apprenticeship Committee (PAC). The competencies are reviewed by curriculum specialists and assembled into a questionnaire to be used with two focus groups of Journeyman, with one held in Edmonton and the other in Calgary. The questionnaire is also distributed to a wide audience of practitioners for additional input. Each competency statement is evaluated on a five point scale for importance and frequency of use, with the results printed in the PAC general report.
  - The ILM initiative is guided by a steering committee comprised of the Deans of four training institutions - one each from SAIT and NAIT the remaining two colleges are selected by the Heads of Trades.
  - This structure is in place to provide a point of call for each stage of the overall process.
  - The Alberta Apprenticeship and Industry Training Board is made up of 13 members consisting of a chair, eight members representing trades and four members representing industry. There are equal numbers of employer and employee representatives.

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### Visit Seven: The Southern Alberta Institute of Technology (SAIT), Calgary, Alberta (Canada)

**Contact:**

Daniel Weinert, Senior Lecturer and Academic Chair of Wood Trades, SAIT

Weinert is responsible for all wood trades development and teaching in carpentry, and cabinet making at SAIT. Weinert is also a dual-ticketed Red-Seal Journeyman carpenter and cabinetmaker.

Prior to working at SAIT Weinert spent 15 years contracting in high-end residential properties and commercial interiors and millwork.



*SAIT Polytechnic*

**Objective:**

Interview Weinert to determine educational priorities for effective training, observe industry supported training and Journeyman exam conditions.

**Journeyman exam outline:**

Hours to construct the desk: 26 shop hours with a contingency for a maximum of three overtime hours. Students lose 3 marks for 0.5 hours in overtime. There is a shop drawing that must also accompany the desk. The desk takes between 6 -12 hours in-class to complete (hours not included in the 26). The hours are not really broken down, instead students have nine shops classes to complete the desk and their time belongs to them to organize and schedule.



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### **Exam conditions and rules:**

The exam is completed in up to nine three hour sessions with workshop access at 7.45am. Students have 15 minutes preparation time with exam conditions commencing at 8.00am. There are no scheduled breaks however a student may take a break if required. Teachers are not permitted to provide instruction although occasional guidance is given. One machine is set up by the instructor (stacked dado, a machine set up to perform a particular type of cut to timber) for one operation to allow consistency in depth and width of cut, as allowed by Apprenticeship Board. Students conduct a cursory tidy up at the end of the three-hour shop class and the project stays on their bench undisturbed. Instructors keep track of daily hours.

The desk constitutes the majority of the students' final fourth period mark and if a student fails the desk exam he or she must repeat the whole year of technical training. In the event of a fail on the desk, there is an opportunity to complete a six-hour hand tool challenge project, but this has around an 80 per cent failure rate. Of the students who fail (5-8 per year), most opt to repeat the technical training

Students are allowed, even encouraged, to discuss the project details during and outside shop class but are not allowed to follow each other on the equipment using the same set-up.



*Journeyman practical exam piece*

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### Outcomes:

The image above is the Journeyman final practical exam piece for fourth year apprentices where candidates are allocated 26 hours to complete the piece as part of their Journeyman accreditation. This is the same practical examination completed by all candidates at all educational institutions throughout the province of Alberta, regardless of whether it is completed at a private training facility or a large Polytechnic such as SAIT or NAIT.

This piece is moderated by representatives of all institutions and the PAC to determine that it covers all the elements of skill that they require a Journeyman tradesman to possess. As this is the final examination the nature of the task is a 'finishing' task to demonstrate fine finishing and fixing skills. Skills in other facets of construction carpentry are tested in exams in previous years along with knowledge tests from completed ILMs under similar exam conditions.

### Key lessons learned from SAIT:

It was observed in SAIT and NAIT that the existence of the Red Seal examination, coupled with the capstone skills and knowledge testing, provides a sound foundation for industry training standards to be upheld across the province. This is heavily supported by industry and government and is held in high esteem within the community. There are no issues with private training organisations delivering a reduced number of training hours for financial gain due to the robust nature of the final examination process and the Red Seal Endorsement process.

There is recognition from educational institutions for achievement in the form of credits into higher education. Students have equal standing in the educational community with those studying mainstream academia; something which fosters a collegiate environment.



*SAIT Original Heritage Building*

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### Overall International Experience Review

In reviewing the overall international experience and considering it against the Australian situation, much can be learned and recommendations can be made.

#### **Key lessons for government, educators and industry in Australia:**

Vocational training providers are currently limited to delivering accredited / certified training qualifications from the national training package and are competing with private RTOs that do not have the same commitment to training quality with much lower operating costs.

Standardised capstone testing conducted and graded independently by external examiners will assist in raising standards across all sectors of trade training and discourage questionable assessment practices.

The current pool of vocational trade teachers is a vastly experienced work force. These educators possess the necessary knowledge and experience required to put together the parameters for a higher qualification. They also have the experience to conduct vigorous and credible testing.

The Fellow has observed that trade teachers are an aging workforce with an average age in the mid-50s and are not being replaced with younger teachers of comparable knowledge and experience. There is a need to invest in this knowledge pool to preserve the current knowledge base and prevent a potential knowledge and skills vacuum.

Key staff from major educational institutions should be identified and brought together to frame the terms of reference for a Journeyman's qualification in Australia. Governments must actively encourage and engage in the development and implementation of this framework. This framework can be supported through initiatives such as partnerships between educational providers, policy makers and professional bodies.

Strategies that governments and industry could support include fostering collaboration between professional associations, linking skills with professional accreditation and membership requirements, and licencing practitioners.

Skills that come with education, learning and experience should be valued and preserved.

In Australia, there is a severe skills shortage in training of experienced tradespeople. However, reducing the minimum requirements to be qualified is not the answer to address a skill shortage. Doing so will further contribute to the shortage and create a skills vacuum in the future.

The introduction of capstone testing designed to test students' ability to independently apply their knowledge and skills will provide a reliable industry standard. The final capstone test therefore should be especially rigorous. The capstone test should incorporate all the material learned in the course and require students to think through and apply the material in an in-depth manner.

#### **Key lessons learnt from the USA and Canada:**

- Provincial Government in Canada has a much deeper level of involvement in apprenticeship training, beyond just funding. This allows for the interests of the apprentice and the training institution itself to be monitored for the overall good of the industry as well as all stakeholders.
- Rigorous knowledge and skills testing that is standardised across the province and driven by a strong collaborative process is an imperative. The industry produces 'job ready' apprentices possessing a high standard, allowing for employers to be confident that it has been achieved.
- Equal measures of input and ownership from all sectors (including government, industry and training)

## 6. THE INTERNATIONAL EXPERIENCE

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provide a balanced approach to the development of training that produces skilled, motivated and knowledgeable Journeymen.

- A system is in place that supports and fosters an apprentice through the duration of their training. This system has clearly defined parameters around the responsibility of all parties. Employers are frequently contacted and monitored for their observance of Journeyman to apprentice ratios (this does not exist in Australia) and for strict adherence to school attendance. This is known as quality assessment of attendance in the USA. The Canadians have a threshold of unexplained attendance that triggers a re-negotiation of the training contract between all parties and closer investigation by the government agency 'Apprenticeships' (this also does not exist in Australia).
- A high degree of credibility is given to qualified tradespeople by the wider community. This stems from the education sector, where trade qualifications are recognised by higher education and partial credit is given towards degree qualifications in pathway fields. This pathway approach allows tradespeople to have a more structured career path into associated fields of higher learning.
- Canada has three distinct approaches or streams in carpentry training:
  - » Heritage focused
  - » Sustainability focused
  - » Construction focused

### **Journeyman in the Australian context:**

- The introduction of a higher level qualification of both skills and knowledge, such as a Journeyman's Certificate or Master Carpenter, in Australia would require a great deal of consultation across a number of sectors.
- To design a model for a new qualification in the field of carpentry that complements the existing system, and builds on the base provided by the current system, a number of areas need to be further examined:
- There is a need to examine how we define our current tradespeople by determining whether:
  - » It is by the qualification they receive?
  - » It is by their reputation in the field?
  - » How long they have been in the industry?
  - » The professional memberships they hold.
- A 'master carpenter' trade qualification could provide some much needed credibility and prestige to the trade qualification encouraging young tradespeople to aspire to higher goals.
- Would peak industry bodies would support such a concept?
- Organisations such as the MBA, HIA, CMFEU and Carpentry Australia would they support this concept?
- The AIA, Victorian Building Authority and Heritage Victoria would embrace the concept of a register for higher qualified 'Journeymen'.
- Existing tradespeople could gain Journeyman status.
- The depth of skill in the current pool of tradespeople reflective of the proposal concept.
- Developing a framework to identify the required 'higher skills' is required and how they would be identified and tested (eg. one single piece of work or a series of tests to achieve a skills profile).
- A qualification that can be obtained post apprenticeship training and outside of the training agreement or contract and can be linked to specific work such as heritage and listed works or specialist fields.

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- The implementation of a new higher skills qualification, delivered with specific outcomes and timeframes and not subject to hours reduction or discounting, but more aligned to profiling is feasible?
- A greater significance placed on the achievement of such a qualification can provide an industry benchmark?
- These master tradespeople would belong to a guild or an organisation that meets regularly to discuss matters relevant to their area of endeavor? –
- How professional development (PD) and a commitment to PD would be assured?
- How these higher skills sit beside other professionals who operate in the building field (such as engineers, building and quantity surveyors)?
- What does the modern master tradesperson look like and what current/future skills must they maintain that would define them? Considerations should include:
  - » The science of carpentry materials - preservation of timber in buildings
  - » Characteristics of Periods of Architecture as they affect the carpenter
  - » Historical building methods and materials
  - » How to undertake rectification/replacement of timbers
  - » Planning for rectification work
  - » Information sources or databases containing historical building documents/plans and details
  - » A sound understanding of sustainability and how to source and use these products and processes
  - » Costs associated with rectification works/preservation
  - » Bodies/jurisdictions/authorities having control of historical properties
  - » Use and care of tools and equipment required to obtain authentic characteristics
  - » Advanced problem solving skills
  - » Project management/planning skills
  - » Extensive knowledge of quality indicators and how to achieve them.
  - » New materials apart from timber that now form part of the carpentry field
  - » Ability to operate and communicate in the digital world
  - » High end communication/personal skills.
- Government engagement is essential for identifying champions, structure collaboration and development of a new qualification that will not only complement the existing training framework but simultaneously enhance it.
- It is vital that the Australian vocational education sector recognise the shrinking skills base and the consequences of delaying action.
- Training providers, industry and governments must acknowledge the need to connect accredited training with new and innovative methods, and form partnerships to develop and preserve higher skills and knowledge in the industry.

# 7. KNOWLEDGE TRANSFER: APPLYING THE OUTCOMES

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The Fellow proposed three ways to promote the findings of his research and this report:

- Present the outcomes to stakeholders, Industry Skills Councils, peak industry bodies (eg. MBA HIA), and the Department of Education and Training.
- Promote the integration of the technical information that aligns itself with a higher qualification requirement into current course delivery.
- Send the report to relevant organisations, with summary information tailored to each organisation's specific interest.
- Increase the credibility of a non-licenced trade qualification in Australia, by promoting the introduction of a Journeyman's qualification.
- Advocate for the introduction of a capstone style examination, of both knowledge and skills, under controlled conditions and marked independently by a single body (similar to the PIC exams).

## **Presentations:**

- Relevant Ministers of the Victorian Government
- Construction and Property Services Industry Skills Council, now included under the Skills Service Organisation (SSO), Artibus Innovation
- Swinburne Vice Chancellor, Vice Presidents and Faculty Heads
- Australian construction industry leaders
- Victorian Construction Teachers Network
- Curriculum Maintenance Managers
- Industry skills commissioner

## **Education integration:**

Assist teachers to integrate higher skills objectives into current frameworks as a first step towards Journeyman or Master status qualifications:

- Certificate III in Carpentry
- Certificate IV in Building and Construction
- Conduct workshops at teacher network meetings with the view to identifying specific areas of skills enhancement to be included in possible future qualifications
- Distribute a proposal to all major state educational institutions (TAFE) for interest consideration and feedback with the view to further developing the concept for presentation
- Conduct surveys at student (apprentice) level to gauge interest.

## **Report synopsis:**

### **Disseminate a synopsis of this Report to:**

- Victorian Construction Teachers Network Group
- CPSISC Carpentry and Joinery Co-Operative
- Artibus Innovation, SSO (successor to CPSISC)
- Housing Industry Association

## 7. KNOWLEDGE TRANSFER: APPLYING THE OUTCOMES

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- Master Builders Association of Victoria
- VRQA
- Relevant Ministers of the Victorian Government
- Relevant Minister of the Federal Government

The Fellow intends on presenting his findings to the above groups. The aim of dissemination is to promote the findings of this Report and initiate discussion regarding the development of a higher qualification. The Fellow also hopes to create a Working Group made up of stakeholders from industry, government and education to form a framework around his proposal.

Note; at the time of writing and during the course of the research period the future status of CPSISC was not certain with the pending implementation of SSO's.

The organisation that has since been awarded SSO status is Artibus Innovation (January 2016)

## 8. RECOMMENDATIONS

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- Examine the possibility of obtaining further government assistance and funding for the development of an Australian higher skills qualification.
- Canvas the public TAFEs for an expression of interest in developing a framework for a Journeyman's qualification.
- Develop a capstone test for trial.
- Establish a Working Group, via public interest, to further examine the key features of the Canadian ILM system. Ideally participants in such a Working Group would be drawn from a range of areas associated with the trade directly, such as:
  - » Education, TAFE and Higher Education
  - » Peak Industry bodies, HIA MBA Carpentry Australia
  - » Industry skills councils
  - » Heritage Victoria.
- The Working Group could look at developing an Australian style Journeyman's qualification model, based on the existing apprenticeship training model.
- An official approach by Victorian Government representatives to the Alberta Government Apprenticeships Board to explore the possibility of shared resources (ILMs) and possible assistance in establishing similar trade endorsed certificate (such as the Red Seal).
- Explore the possibility of reciprocal recognition of qualifications during discussions with Canadian and USA stakeholders.



## 9. REFERENCES

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