

Building Brighter Futures

**Present and Future Skill Needs
in the
Building and Construction
Industry**

August 2001

Front Cover



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Building Brighter Futures

Present and Future Skill Needs in the Building & Construction Industry

Prepared by

The Building & Construction Industry Working Group
under the National Industry Skills Initiative

For the Honourable Dr David Kemp MP
Minister for Education Training & Youth Affairs

August 2001

Bruce Langford-Jones	(Co-Chair)	Brurob Nominees Pty Limited
John Haskins	(Co-Chair)	Haskins Contractors Pty Limited
Mary Johnston	(Deputy Chair)	Department of Education, Training & Youth Affairs
Marshall Cusworth		MJC Building Contractor
Geoff Crothers		Geraldton Building Company
John Murray		Master Builders Australia Inc.
Denis Wilson		Master Builders Australia Inc.
Laurie Kruize		Housing Industry Association
Rob Lucas		Australian Industry Group
Steve Balzary		Australian Chamber of Commerce and Industry
Jim Cusack		Australian National Training Authority
Jessie Borthwick		National Centre for Vocational Education Research
Linda Lipp		Department of Employment, Workplace Relations and Small Business

In addition, the following people contributed to the report or working group processes

Cassandra Hampton		Australian Chamber of Commerce and Industry
Paul Fairweather		National Centre for Vocational Education Research
Matthew Hardy		National Centre for Vocational Education Research
Denis Hart		Department of Employment, Workplace Relations and Small Business
Charles Thomas		Department of Employment, Workplace Relations and Small Business
Greg Clarke		Department of Education, Training and Youth Affairs
Ross Young		Department of Education, Training and Youth Affairs
Ruth Morschel		Housing Industry Association
Andrew Barger		Housing Industry Association

We have pleasure in presenting our report on the present and future skill needs of the building and construction industry to the Honourable Dr David Kemp MP, Minister for Education, Training and Youth Affairs.

The building and construction industry is a vital part of the Australian economy. It provides both the physical infrastructure for the economy and the built environment, which determines the quality of our daily lives. Every aspect of today's building and construction industry is undergoing rapid change. The industry faces challenges posed by the sweep of globalisation, new technologies in information and communication processes, more demanding clients and new methods of construction.

All these changes require the development of a more adaptable and skilled workforce. We are increasingly recognising that the industry's performance in the global economy, and our national economic competitiveness generally, will be built on the skills and knowledge of its people, and particularly on their capacity to adapt to an ever-changing world.

The building and construction industry must ensure that it creates a skills formation environment in which both its existing workers and new entrants to the industry can maximise their potential.

This report sets out the issues that must be addressed to ensure that the education, employment and training systems can provide what industry needs to be competitive both at home and abroad. The report presents a coalface view of the challenges that must be met in responding to the needs of both individuals and firms to match the changing demands of the business environment.

We would like to express our appreciation of the efforts made by all members of the Working Group, and the employers and apprentices who freely gave their practical view of what is required to meet these challenges.

Our thanks are extended to Dr Kemp for initiating this important project. We commend it to governments and industry alike.

John Haskins
Co-Chair
Building & Construction Industry
Working Group

Bruce Langford-Jones
Co-Chair
Building & Construction Industry
Working Group

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Executive Summary

The building and construction industries are the engine room of the Australian economy. These industries lead national economic activity and build the infrastructure within which value creation occurs. This role in providing infrastructure inputs for the rest of the economy makes it imperative that the building and construction industries operate efficiently, as any efficiency shortfall reverberates throughout the economy.

Australia's building and construction industries are composed of three broad groups of building activity, including housing, commercial/industrial construction, and civil construction. While these three building industries have significant strong cross-industry training relationships, important structural differences must be reflected in tailored training approaches.

Success in the building industries requires a whole gamut of skills: from technical expertise; to an entrepreneurial dash; an unrelenting customer focus; and the ability to appraise and manage risks. The right combination of talents required for success is not common, requiring both innate ability and a training environment that fosters the development of these skills.

Efficient building industries require efficient training mechanisms. Successful building requires a skill development process that allows the ready transfer of a judicious mix of practical and theoretical knowledge. An efficient transfer requires a flexible blend of on-site and formal training.

In one of Australia's most entrepreneurial industries, the traditional focus of training has been too much on training employees rather than equipping the entrepreneurs of tomorrow with the business skills that they will need to succeed.

The craft-based system of apprenticeship training has a proud tradition, which stretches back for hundreds of years. Builders and trade contractors rightfully take pride in the quality of their craft. The links to these training origins needs to be maintained, but updated and revitalised to ensure that Australia's training system is ready to meet the ongoing challenges of change that the new millennium will surely bring to all building sites.

The building and construction industries welcome the opportunity to address the challenge of training. The Commonwealth's leadership in forging cooperative partnerships with industry to address training issues is warmly acknowledged.

This Report is the culmination of efforts by the Building and Construction Working Group. The Working Group has examined the process of skill development and the way in which this process could better meet the current and emerging needs of the building industries.

The Working Group identified two key training challenges for the building industries.

- The first challenge is in training new entrants – ensuring that they are rapidly equipped to provide a positive contribution on-site. This fast track to productivity is also a fast track to job satisfaction. The sooner new entrants can put into practice what they have learnt and be rewarded with a tangible result, the more

encouraged they will be to pursue future training and professional development opportunities.

- The second challenge is in broadening and deepening the pool of skills on which the building industries draws. This includes ensuring that the industries have access to the latest techniques and practices as well as providing a flexible framework, which recognises the progression of skill development.

The Working Group made more than twenty recommendations as to how the training system could be better focussed on the industry's needs. Some of the major findings of the Working Group are summarised below.

Streamlined policy development would better address industry volatility to accelerate the benefits of training and separate training issues from more complex issues.

Streamlined policy development would better... The Working Group was concerned by the unnecessary duplication in the development of training policy. These duplications extend to the role and structure of industry advisory bodies, which serves to dilute the building industries' contribution, leaving many small firms feeling disenfranchised from training systems. The development of training policy and the industry advisory bodies that advise this development needs to be streamlined to reflect the industry's operating structure.

... address industry volatility to... The Working Group identified the volatility of industry demand and the resulting impact on building industries' skill levels as a key training issue. The industry moves through regular cycles of being too busy to afford the time to train and not being busy enough to afford to train.

... accelerate the benefits and ... The timing of the net benefit from training is critical. While the training benefits to firms are clear, often they are not realised for some time, whereas the costs are immediate. The current provision of training is constrained by the negative cash flow it generates in the short term.

... focus on training issues. The Working Group considered that the complex interplay between industrial relations and training has not always worked to advance the cause of training in the building and construction industries.

Linkages are critical, between schools and industry, between trainers and the marketplace, between procurement and training, and between licensing and training.

Linkages are critical, between schools & industry... The Working Group recommends that strong links must be forged between schools and the building industries, before school-based programs are going to realise their full potential.

...between trainers & the market... The Working Group proposes that the interplay between product and process innovation in the building industries is an important driver of growth. The process of skill formation could be better targeted if it was informed by a better understanding of this cycle of innovation.

...between procurement & training... Strong public sector demand in the commercial and civil construction industries means that Governments are well placed to encourage increased apprentice numbers and promote training outcomes.

...and between licensing & training. The Working Group noted that industry licensing systems have been largely driven by consumer protection objectives. Governments and industry need to work to ensure that industry licensing is nationally consistent and is fully integrated with reforms under the national training agenda.

A focus on performance is essential to respond to emerging training opportunities, for funding training for better training structures and for the better provision of training.

A performance focus is essential to respond to opportunities, for funding training... The views of training levies were inevitably coloured by the builder's industry and the experience in their home state. The Working Group concluded that while a properly run training fund is valuable for both entry level training and training of the existing workforce, funds should be spent directly to assist the levied firm's training effort rather than spread generally across the building industries.

...for better training structures... Many in the building industries regard Group Training Schemes as providing a good blend of flexibility and stability. The Working Group considers that these schemes merit further attention and support.

...and for better provision of training. Training flexibility in providing distance training, particularly through new electronic media, provides an opportunity to support training in regional and rural areas. The Working Group recommends that Governments work with the industry to investigate and promote ways to providing training via distance education and through on-line techniques.

In essence, the Working Group recognises that while the process of skill development across the building industries is an inherently difficult subject to address, that achieving the goal of delivering a practical focus on training requires a four-stage process:

1. Recognising **structural differences** between areas of the building industries activity, in order to;
2. Achieve **communication** amongst, and **commitment** from, all stakeholders, in order to;
3. Deliver the **flexibility and innovation** that the building industries need to;
4. Unlock **productivity** increases and realise this potential on a national basis.

The Working Group looks forward to working in partnership with industry stakeholders in actioning and implementing this Report's recommendations.

Background

In September 1999 the Minister for Education, Training and Youth Affairs, the Honourable Dr David Kemp MP, convened a meeting with the Australian Chamber of Commerce and Industry (ACCI), the Australian Industry Group (AiG) and the Business Council of Australia (BCA) to discuss issues relating to skill shortages.

In November 1999 the Minister established the industry-led National Industry Skills Initiative to determine the steps industry and government could take, separately and in partnership, to address industry skill issues.

Three industries were investigated initially - engineering, automotive and electro-technology. Reports from the Working Groups of these initiatives were delivered to Dr Kemp at an Industry Skills Forum in Melbourne in April 2000. Action plans for these industries, based on report recommendations, are being implemented.

At the April Forum Dr Kemp announced that a similar process would review three further industries - building and construction, food trades and rural industries. This report outlines the initiatives, outcomes and recommendations of the Working Group which reviewed the building and construction industry.

Dr Kemp also appointed a National Industry Skills Initiative steering committee to examine cross-industry issues emerging from the findings of the Working Groups. Acknowledging specific issues belonging to each group, the first round of the National Industry Skills Initiative identified twelve themes common to all industries. These are: adopting the learning culture, improving the industry image, promoting careers, reviewing the activities of New Apprenticeship Centres, promoting new training pathways, recognising prior learning, retraining the workforce, improving workplace relations, streamlining regulatory frameworks, reviewing employer incentives, migration issues, and boosting information and analysis.

The methods and common issues emerging from previous Working Groups were also a useful reference for this investigation.

Terms of reference

The Working Group, led by the Housing Industry Association and Master Builders Australia, and in association with the Australian Industry Group and Australian Chamber of Commerce and Industry, was established to operate under the following terms of reference. The Working Group also included representatives from the Department of Education, Training and Youth Affairs, the Department of Employment, Workplace Relations and Small Business, the Australian National Training Authority and the National Centre for Vocational Education Research.

The terms of reference were:

1. Undertake research and/or provide evidence of research, which demonstrates the benefits to employers of investment in training.
2. Identify the skill set needs of each occupation area now and into the future, including common cross industry issues.
3. Identify the impediments and/or barriers to satisfying these needs.

4. Recommend initiatives/solutions (short, medium and long term) that may assist in addressing the needs.

The project was also to identify broader issues in addition to training issues, including:

- Future employment opportunities
- Industrial relations issues
- Immigration and internal migration
- Addressing cyclic employment changes
- Identification of current skills sets
- Examination of differences between training undertaken across each sub-sector, including the extent to which specific trade areas cross over between sectors, and the impact on skills availability and training
- Potential opportunities for traineeships
- Ageing of the workforce and skill needs
- Image problems including attitudes of potential employees, parents and teachers, to employment in the industry
- Industry advisory arrangements
- Retention and attrition rates
- Use of training levies, and
- Public Works procurement strategies.

Scope

Australia's building and construction industry is composed of three broad groups of activity, including housing, commercial and industrial construction, and engineering construction which have strong cross-industry training relationships.. The industry consists of project-based firms; property groups, including clients and building occupants; a supply network covering supplies and manufacturers; and professional groups.

The Working Group decided that the industry was too large, varied and complex for all building and construction's skill requirements to be covered in the one study. It therefore decided to concentrate, in the first instance, on the on site disciplines.

The Working Group conducted the project in five steps, involving data collection, analysis and industry consultation.

1. First, it requested the Department of Employment, Workplace Relations and Small Business (DEWRSB) to provide statistical information on occupational coverage, employment distribution and growth, job vacancies, status of skills shortages, age profile, migration and earnings profile, and information on destination of workers leaving the industry.
2. Second, it requested the Department of Education, Training and Youth Affairs (DETYA) to provide information on vocational education and training initiatives and an analysis of attrition in apprenticeships.
3. Third, it conducted a survey of perceptions of employers on industry skill requirements. This survey was also used to validate information drawn from the work undertaken by DEWRSB. The National Centre for Vocational Education Research (NCVER) carried out the task of analysing this information.
4. Fourth, it held focus conferences with employers to examine perceptions and views with regard to the industry's skill requirements and build on the data drawn from the industry survey.
5. Finally, it held similar focus conferences with apprentices in the industry to examine their perceptions on the industry's skill requirements – their personal impressions as an apprentice in the industry.

The information drawn from this research is incorporated into this report. Discussions have been held with other industry stakeholders, including Construction Training Australia, to ensure that there is an integrated approach to the provision of advice to Government.

The project was specifically targeted to ascertain the views of employers and employees, thus obtaining a “grassroots” perspective on the future direction of education and training in the industry.

The building and construction industry is a vital part of the Australian economy. As well as its own contribution to national output, it has a significant impact on the efficiency and productivity of other industries. The output of the industry provides both the physical infrastructure for the economy and the built environment, which determines the quality of our daily lives.

Size of the Building and Construction Industry

In 1999-2000 approximately 210,000 firms operated in the building and construction industry. Average employment during the year was 697,500 persons and the value of work done was \$70 billion.

The relative size and importance of an industry can be measured by its contribution to national production: the value it adds to purchased materials and services. In 1996-97 the industry contributed 14.4% of Australia's national output. In 1999-00 the figure was \$70 billion, or 11.3%.

Of the three main areas of the industry, housing was the largest, with work to the value of \$36.5 billion (or 5.9% of GDP). Engineering construction, with a turnover of \$19.3 billion (or 3.1% of GDP), came second, followed by commercial and industrial construction, with a turnover of \$14.2 billion (or 2.3% of GDP).

The building and construction industry is larger than agriculture, mining, and the gas, electricity and water utilities, but less than half the size of manufacturing. Of the remaining industries, the expanding services sector contributed 71% of GDP in 1999-2000, up from 59% in 1979.

Leaving aside engineering construction the industry consists of two distinct groups of activity: commercial and industrial construction, and housing. While the physical process of building in both groups is similar their structure, processes, efficiency and outcomes are strikingly different as set out below:

Characteristics	Commercial/Industrial Construction	Housing
Labour:	Contract & employee basis	Contract Basis
Unionisation:	Medium level of unionisation	Complete freedom of association
Flexibility/responsiveness:	Highly flexible	Rapid – world's best practice
Price Sensitivity:	Highly competitive with other investment classes	High – affordability is a key issue
Firm Size:	Small, medium, large and multi-national	Typically small, most commonly husband & wife teams
Location:	Mainly urban – also regional	Closely matches population distribution
Efficiency:	Highly efficient	High – world's best practice

Three prominent features of the building and construction industry - its maturity, its cyclical volatility, and the fact that its product cannot be transported or stored – have a profound influence on its structure and economic performance, and its particular skill needs.

- The industry is centuries old and shares a characteristic of all mature industries: slow growth and intense price competition.
- The industry is highly volatile: activity fluctuates widely around its average growth rate.
- Because the industry's product cannot be stored or transported, its markets are regional rather than national, and few economies of scale are available. Unlike manufacturing, the construction industry cannot produce millions of units at low unit cost and ship them around the world.

In response to these characteristics firms generally remain small, try to keep fixed overheads low, and use the sub-contracting system to take advantage of specialist skills that enables them to expand or contract operations rapidly.

Ease of entry to the industry and intense price competition keep costs and profit margins low. A study of the Australian residential building industry by McKinsey found that it was one of the most efficient and cost-effective in the country, with the potential to use its small business enterprise methods, sub-contracting system and technology to advantage in international markets (*Growth Platforms for a Competitive Australia*, Sydney, 1995).

Number and size of firms

A recent study by the Australian Bureau of Statistics *Small Business in Australia Update 1999-2000*, (ABS 1321.0.40.001) found that there were more than 1.1 million private non-agricultural businesses in Australia, and of these 210,000 were in construction.

Building and construction came second behind property and business services, (214,000 firms), but ahead of retailing (170,000 firms), manufacturing (92,000), personal and other services (78,000), health and community services (71,000), and wholesale trade (69,000).

A count of building and construction firms on the Business Register database of all businesses employing wage and salary earners shows that in September 1998 there were 107,600 employing firms. This is the latest available data available showing the distribution of firms by size and industry segment; an estimate of the distribution of firms by industry segment and size is shown below.

Number and size of firms, 1999-00

Size of firm Employment	Small (1 to 19)	Medium (20 to 99)	Large (100 or more)	Total
Housing	54,690	300	10	55,000
Commercial and industrial building	6,183	260	57	6,500
Engineering construction	8,890	500	110	9,500
Specialist services	137,921	994	85	139,000
Total	207,684	2,054	262	210,000

Nearly all firms in the industry are small businesses with the remaining firms in the medium to large segments of the industry.

In February 2000, the industry employed 693,700 people: 251,000 in building and construction firms and 442,700 in specialist trade services. Because those employed in the specialist trade services work are generally sub-contractors for builders and renovators, non-residential builders, and engineering construction contractors, it is not possible to provide exact figures on how many people are employed in each major segment of the industry.

Making some reasonable assumptions about labour productivity in each segment, it is possible to estimate average employment in 1998-99 was as follows:

Housing	323,000
Commercial & Industrial Construction	146,000
Engineering construction	<u>165,000</u>
Industry total	<u>634,000</u>

Financial performance

In recent years the ABS has published data on the aggregate financial results of businesses, which employ staff (*Business Operations and Industry Performance, Australia, 1997-98*, ABS 8140.0). Because employing businesses account for only half of all firms in the building and construction industry, the results for construction are not truly representative of the industry as a whole, but the figures are still of interest.

They show that the building and construction industry typically earns low profit margins on sales: 4.6% in 1997-98 compared with 9% for all industries. But it needs few assets to generate quite high revenues: the ratio of sales to assets in 1997-98 was 2.1, compared with an average for all non-finance industries of 0.9.

Profitability - the return on the assets employed - is therefore relatively high, despite low margins on sales. In 1997-98 the pre-tax return on assets in the building and construction industry was 9.7%, compared with an average for all non-finance industries of only 6.5%.

Composition of building and construction work done

- **Housing** - this includes the building of new houses and multi-unit dwellings, and the renovation of existing housing. In this report renovations are defined as all alterations and additions to housing, not just those valued at \$10,000 or more, and approved by consent authorities, as reported in ABS *Building Activity* statistics.
- **Non-residential building or commercial construction** - this includes industrial and commercial building (such as offices, shops, factories and other business premises), and social infrastructure (including schools, universities, hospitals and nursing homes).
- **Engineering or civil construction** - this includes roads, railways, bridges, harbours, telecommunications facilities, water and sewerage systems, recreation facilities, and other non-building structures used by heavy industry, such as mines, refineries, chemical plants, steel furnaces and other industrial processing plants.

Over the past ten years, the building and construction industry activity, measured by the value of work done in constant 1997-98 prices, increased from \$52 billion to \$64 billion. This is an average growth rate of 2.4% a year.

Public and private sector demand

About a quarter of industry activity is driven by public sector spending – the Commonwealth government, state/territory and local governments and public corporations. The extent of public sector involvement varies across the industry: less than 5% in housing, about 25% in commercial and industrial construction, and more than 50% in engineering construction.

Over the past 12 years the public sector's share of total activity has declined significantly – from 35% in 1986-87 to 23% in 1998-99. The main reason for the decline has been the privatisation of formerly public utilities providing telecommunications, electricity, gas, water and sewerage. This trend seems likely to continue over the next decade.

Outlook for the building and construction industry

Work done in the building and construction industry fell in the December quarter 2000, and total activity was down by 12%:

- Work done on new housing fell by 18%;
- Work on housing renovations was down 12%;
- Non-residential building dropped 8%;
- Engineering construction fell by 10%.

Employment figures show that industry employment peaked in the September quarter, 2000, at 716,000, the highest level ever recorded. In the December quarter, employment fell by 36,000 (5%), and in the March quarter, 2001, by a further 12,000 to 667,500.

After 3 strong years of growth, overall building and construction activity was forecast to fall by 16% in 2000-2001 before recovering by 4% in 2001-02. Most of the recovery will be in residential building, as new housing is forecast to rise by 13% and renovations by 6%.

The following table sets out actual and forecasted building activity from 1995 to 2002. The figures highlight the sensitivity of the industry to macro-economic conditions and the cyclical nature of its operations. The forecasts are valuable context for the likely demand for skills.

Building activity – actual and forecast

Year	Housing	Commercial & Industrial Construction	Civil Engineering
Actual: (Chain, volume, measures, base 1998-99)			
1995 – 96	\$25,554 million	\$12,637 million	\$15,000 million
1996 – 97	\$25,509 million	\$13,785 million	\$15,472 million
1997 – 98	\$29,389 million	\$13,851 million	\$17,391 million
1998 – 99	\$32,525 million	\$14,534 million	\$19,184 million
1999 – 00	\$36,500 million	\$14,179 million	\$19,324 million
Forecast			
2000 – 01	\$29,000 million	\$11,900 million	\$17,600 million
2001 – 02	\$31,700 million	\$12,000 million	\$17,200 million

An industry in rapid change

The one constant in Australia's building and construction industry is rapid change. This requires the development of new skills and knowledge to enable the industry to be more innovative in an increasingly competitive environment.

Approaches to procurement, particularly for infrastructure projects, have changed dramatically. The construction industry is now starting to invest in the infrastructure, which was once solely the domain of government. This has led to the traditional contractors becoming both the builder and the operator of infrastructure assets.

This in turn has transformed head contractors into project managers who use the sub-contracting system to carry out the on site work, supported by professional consulting teams, manufacturers and suppliers.

In residential building, although the stand-alone residential unit remains the mainstay of business, the industry is increasingly undertaking cluster developments, high-rise units, apartments and refurbishment of inner-city commercial and industrial buildings for housing. The role of the head contractor has changed: traditionally employing their own labour, they now increasingly draw on sub-contractor arrangements.

These changes have dramatically altered the way that training needs to be delivered. The introduction of the National Training Framework, underpinned by a range of flexible National Training Packages has given rise to pressure on training providers to develop training programs that reflect the needs of the industry.

Today's industry is also adapting to changes arising from the economic development of Australia, particularly changes in procurement and regulatory systems and in international environmental protocols. Today's contractors must adapt to these changes, with consequential effects on their education and training requirements.

One of the major changes, which will radically affect the way that the industry operates in the future, is taxation reform, including the Goods and Services Tax (GST). This has had a profound effect on the way that the industry provides its services.

Procurement

Reforms in procurement strategies over the past ten years have also changed the way in which firms are structured and staffed. The move to a more diversified sub-contracting system has altered the employment profiles of firms, which has in turn changed the way in which business invests in training.

Expenditure on training

A number of studies have suggested that the building and construction industry has one of the lowest levels of expenditure on training of Australian industries. However, it is often said by those in the industry that this ignores the operational profile of the industry, as it does not take account of the extent of informal training that occurs on the job.

The regulatory framework

Regulatory provisions adopted under the inter-government agreement that established the Australian Building Codes Board or enacted by individual state and territory legislation are also altering the way in which the industry operates. National uniform building regulations provide opportunities for firms to work across state and territory borders, but they are not underpinned by consistent licensing or planning systems. The effect of this on skill requirements varies across jurisdictions, but the result of this regulatory fragmentation of the industry has made it difficult to develop a nationally integrated approach to skill development and accreditation.

There is further evidence of this fragmentation in the training framework, where national consistency has not been achieved because of the “local requirements of industry” and the approach taken by state and territory training authorities.

Australia has also committed to developing uniform national energy regulations for building that will further alter the way in which the industry operates. In addition, the environmental protection initiatives increasingly brought in by national and state governments, will provide additional pressures for firms to offer environmental solutions. These initiatives will create a demand for new vocations and a requirement for additional competencies to be introduced, not only into apprenticeships, but also into all training and skills development processes.

1. Introduction

The Working Group has considered the research done by DEWRSB, NCVET, DETYA and the outcomes of the skill survey and the focus groups. It has also taken account of the work done by other groups to facilitate quality training in the building and construction industry. These include Construction Training Australia and State and Territory advisory boards, as well as relevant State and Commonwealth government agencies.

The Working Group is concerned that there appears to be unnecessary duplication in the development of training policy, with many authorities and industry advisory groups seemingly covering the same territory. The Group considers that it is important to establish coordinated mechanisms that will allow all stakeholders to know about; participate in; and contribute to; the work being done around the nation.

The Working Group recommends that a high level taskforce be formed to carry out the actions proposed in the recommendations. The composition of this group should be based on the recognition that housing is very different from commercial and engineering construction. The composition of this taskforce should reflect the relative magnitude of the industries activity levels.

Recommendation 1

The Working Group recommends that the implementation of this report's range of recommendations be undertaken by a high level taskforce whose composition is representative of the industry's activity.

2. Industry profile

Australia's building and construction industry provides employment in the construction trade workforce for 274,700 people. Almost 33% of these are in carpentry and joinery, followed by plumbing (19.9%) and painting and decorating (13.2%). The construction trades have experienced a growth rate of 3.6% over the past two years, significantly stronger than growth in overall trades employment (1.5%).

The age profile of construction occupations varies considerably between trades. Overall, 32% of trade and non-trade workers are aged 45 or above. Such a high proportion of workers in the oldest age group indicate the possibility of skill shortages developing as workers retire.

The extent to which qualified and skilled tradespersons leave their trades is critical. Analysis of figures from the latest census show that, of those with qualifications, 41% were still in their occupation and 30% were working in non-trade occupations.

In order to retain the services of skilled tradespeople the industry must consider ways in which it could bring back those who have left the industry, so that their experience will be available to meet increases in demand for skills.

Immigration is an important supplement for domestic training with net immigration in the building and construction industry around 700 in 1996–97, rising to slightly over 900 in 1999–2000. The potential of some immigration programs to meet short or medium term needs in the industry are yet to be determined and need to be investigated.

3. The demand for skills

The level of demand for skills in the broader building and construction industry depends on activity levels.

Housing activity, measured in constant 1998-99 dollars, is forecast to fall from a total of \$36.5 billion dollars in 1999-2000 to \$29 billion in 2000-01 and then strengthen slightly to \$31.7 billion in 2001-2002. The sudden downturn in housing in 2000-01 resulted in the loss of thousands of jobs and commensurate skills to the industry, however a recovery has started to be experienced.

The value of work in the commercial and industrial construction sector is expected to decline from \$14.2 billion in 1999–2000 to \$11.9 billion in 2000–2001, followed by a slight improvement in 2001–02 to \$12 billion. The value of engineering construction is forecast to decline from \$19.3 billion in 1999–2000 to \$17.6 billion in 2000–2001 and \$17.2 billion in 2001–02.

The resulting impact on employment in commercial construction and engineering construction is not expected to be as severe as in housing.

The results of the skills survey revealed skills shortages across a range of occupations over the past twelve months, an experience consistent with the level of composite industry activity: 41% had difficulty engaging bricklayers, 30% engaging carpenters, 29% engaging wall and floor tilers and 21% engaging plasterers. These shortages are expected to continue over the next two years as activity levels begin to recover.

Increased specialisation in the industry has created pressure for a more flexible training regime to meet industry demand for up skilling and cross skilling. As an example, training for the specialised occupational area of brick paving is included within the qualification for Bricklaying. It is therefore important that in the development of broad industry qualifications, consideration is given to ensure competency standards can be packaged to provide training programs for specialised areas and that trainees receive credit for competencies achieved.

A recent review of the training packages carried out by Construction Training Australia, indicated that training for apprentices should provide more flexibility to be relevant for the workplace. Many employers are specialist contractors who carry out specialised tasks within the broader trade area and current qualification structure. The industry sees it as critical that these workers have access to relevant training, to acquire skills for the work they do, in preference to bypassing the training system.

It is important to engage apprentices in formal training and then seek to motivate them to broaden their skills for both their own benefit as well as the industry. It is therefore proposed that increased flexibility is made available within the qualifications, where necessary, and that these programs are funded for delivery.

The volatility of industry demand and the resulting impact on industry skill levels remains a perennial issue for the building and construction industry. To the extent that cycles in activity are out of step offers a partial mechanism for the industry to retain skills, as some trades can work in different areas of the industry.

Recommendation 2

The Working Group recommends that a skill demand model be developed to predict more precisely the skill demands of the industry.

Recommendation 3

The Working Group recommends that the Task Force examine ways in which specialised occupational outcomes can form part of nationally recognised qualifications within Training Packages and be funded in the same way as other Training Package outcomes.

4. Marketing the industry to the community

The Working Group found that there were perceptions in some quarters that the industry is unattractive and that many young people do not include it in their career aspirations. The community views the building and construction industry as dangerous, characterised by poor working conditions, low rates of pay, limited career options, and generally unattractive. The Working Group asserts that the reality is that industry is full of exciting opportunities and a wealth of varied vocations, and that the public's misconceptions need to be addressed.

The participants in the survey and focus groups felt that past marketing of the building and construction industry as a career has generally lacked clear direction and that a national marketing strategy is needed to promote the industry. Positive marketing will help to both attract and retain people in the industry. Such a marketing strategy should be particularly directed at correcting the perceptions of parents, teachers and school-age people.

A number of apprentices in the focus groups remarked that they were impressed by the advertising campaigns for other industries, particularly the defence force. They identified that the key message that the building and construction industry failed to sell was that a person could start choosing a building career through industry/schools programs. This can then lead to the development of their skills through an apprenticeship or traineeship, which in turn offers opportunities for them to start their own business.

While it is important that the building and construction industry establish a marketing strategy as a career option, is also essential that people advising young people about their careers have the information that will enable them to provide correct advice. From the focus groups and the skill survey it was apparent that career advice about the industry is currently inadequate. The Working Group recommends that school career advisers be provided with accurate information so they can confidently promote the right message.

Recommendation 4

The Working Group recommends that government and industry develop a targeted marketing campaign to improve community understanding of the range of career and training opportunities within the building and construction industry.

Recommendation 5

The Working Group recommends that governments support the industry's development of information for career advisers thus enabling them to equip young people to make informed choices about career pathways.

5. Investment on training in the industry

Australia's building and construction industry spends less than average on structured training in comparison to other industries. In addition, the industry's reliance on independent contractors, rather than employees, means that much of the industry's spending on training is on providing skills for partners, working directors and sole traders rather than on employees.

At the focus groups, industry expressed concern that small firms lacked immediate returns from such investment. It was a recurring concern that apprentices often left at the completion of their training to join other firms or to set up their own businesses.

Both the industry survey and the focus groups commented that in their first year or two, apprentices cost more than they contributed. In the next two years, apprentices tend to contribute more than they cost so firms felt they were getting a return on their earlier expenditure. Many argued that the benefits were too slow to arrive and did not justify the initial costs of apprenticeships.

A second concern expressed at the focus groups, particularly by small firms, was with the order in which apprentice training is provided. The sequence of skill training is critical, the industry values apprentices who rapidly acquire those specific skills that boost immediate productivity, with broader skills development occurring later in the apprenticeship. Too often formal training does not reflect this industry focus on productivity in sequencing skill development.

Among the industry representatives who had not engaged apprentices or trainees in the past, the main reason for not doing so was uncertainty about future business opportunities. Other reasons given were:

- Apprentices were too expensive;
- Insufficient financial support from government was available;
- A perception that the pool of interested young people was limited;
- Excessive administrative burdens;
- Inability of firms to provide supporting on the job training.

Other problems identified with the existing system of apprenticeships were:

- The small size of firms made it difficult to provide apprentices with the necessary personal care and support.
- Apprentices from out of town had trouble finding accommodation.
- The pressures of living in today's society discouraged dedication to the job.

In particular the critical aspect of undertaking an apprenticeship in today's mobile industry is having access to transport. The inconsistent age of gaining a licence represents a real impediment to many young people entering the industry.

The Working Group agreed that the critical issue was the timing of costs and benefits, including incentives, for apprenticeships. The comments from the industry survey and focus groups were that the costs were largely up front, while the benefits were longer term. The scale and particularly the timing of training incentives needs to be carefully considered against a framework of how these costs and benefits accrue to the firm, the apprentice and the wider community.

In recent years, the industry has become concerned about the arrangements for incentives at both the national and the state/territory level. The Working Group has concluded that there is significant misunderstanding as to the availability of employer incentives, employee allowances and other support for training. The industry considers that support arrangements should be streamlined to minimise employer confusion and ensure that adequate information is readily available to employers and that the support reaches its intended targets.

It is also necessary to ensure that support arrangements can easily be marketed to employers and other stakeholders, provide a clear statement of the priorities the government wishes to see advanced, and minimise the administrative and cost burden on the industry. It is also important that the arrangements be uniform across Australia.

Recommendation 6

The Working Group recommends that further work be undertaken to more accurately determine the level, nature and scope of investment in training by the industry, governments and individuals; and then develop a strategy to market to industry the benefits of training. This should then be underpinned by the conduct of industry forum to emphasise the message that expenditure on training is an investment not a cost.

Recommendation 7

It is recommended that the industry provide advice to the Commonwealth advice on issues relating to take up of incentives by building and construction employers, including the correlation between the provision on incentives and investment decisions on training.

6. Training and industrial relations issues

The complex interplay between industrial relations and training has not always worked to advance the cause of training in the building and construction industry. The issue of apprenticeship award rates of pay has yet to be satisfactorily addressed. This is particularly true in housing, where payment is usually made against outcomes, for example a dollar rate for every thousand bricks laid. This performance basis of payment is at odds with the award system.

The low wage levels offered to starting apprentices are often cited by Australia's youth as one of the reasons why the industry lacks appeal for new school-leavers. On the other hand, industry often argues that even these low wages can over-state the apprentices' contribution to the productivity of a site.

The up-front provision of practical training, before an apprentice ventures on site offers a way to increase their productivity. Increased productivity is the fastest route to increasing the rate that the industry is willing to pay apprentices. The difficulty has been in linking competency and productivity levels to rate of pay. In a similar vein, training systems must be flexible enough to allow the effective provision of this practical training up-front. The survey found that it was beneficial to employers that a new apprentice is already partly capable of carrying out their duties of a chosen occupation.

The structure of the current Training Packages for the industry requires that a qualification have an occupational outcome. However the current packages do not adequately address the training required for pre-apprenticeships or pre-vocational training. The industry, in the review of the Training Package by Construction Training Australia, overwhelmingly requested consideration is given to the development of suitable pre-vocational "courses" that adequately prepare workers for employment.

Recommendation 8

The Working Group recommends that industry and employee organisations work with government to agree on principles to be developed that underpin training wage arrangements to complement training reforms.

Recommendation 9

The Working Group recommends that training systems focus on developing an intensive industry-specific induction training to equip apprentices with practical skills to contribute to the productivity of work sites.

7. A National Training Framework

The introduction of the National Training Framework offers benefits for the broader building and construction industry. However, research for this report found much uncertainty as to the goals of the National Training Reform Package and the roles that various parties were meant to play in ensuring an effective education and training system.

The uptake of the National Training Packages in the building industry has not been as good as it might have been and, in some jurisdictions, the vision of national consistency has been lost.

Many State and Territory agencies have been slow to introduce national standards and have pursued other models, thus wasting the considerable efforts made by industry representatives. Albeit that some agencies have now started to work to ensure national standards are put in place, it is important that implementation of the new qualifications be progressed as a matter of urgency.

Underpinning the National Training Framework is the development of systems and structures that will allow training providers to deliver flexible programs, which meet the needs of the industry. If providers are to deliver such flexible training, the process for registering them and monitoring the provision of their services must be simplified; only then will we have a workable user-choice system. HIA and the MBAs have already expressed their concern through ACCI that the benefits offered by user-choice have not been delivered.

The building and construction industry provides many Australians with the freedom to work for themselves. Small business proliferates in the industry. Many school leavers are attracted to the industry because of the opportunity to be their own boss and work in their own business. Yet the training and accreditation processes focus largely on technical and other skills, rather than equipping a person with the business skills needed to ensure that their firm can survive and thrive.

The Working Group acknowledges the work that is in train to offer future apprentices an elective unit on business skills, but suggests that greater training efforts are necessary to entrench business skills as an integral part of the industry's skills set.

If Australia is to have a National Training Framework it is essential that industry and governments work together to implement the reforms that have already been made to create a national approach to qualifications.

The Working Group found that there were strong and divergent opinions on the quality of vocational training. Many industry representatives reported that the quality of training in the public sector had not kept pace with the changes arising from the training reforms. Apprentices were particularly unhappy with the training they had received and felt that what they were learning at TAFE was not as relevant as it should be to the work they were doing on the job.

The changing occupational structure of the workforce, and the skill sets required to meet market demands, will require flexible training packages. The Working Group is concerned that there appears to be restrictions on how the competencies can be clustered to form a qualification. This is particularly an issue in housing, where those working on renovations typically need to access a broader range of skills than those working on new housing.

Increased flexibility needs to be built into training qualifications, to take account of increasing specialisation within the industry. Meeting the demands for training in specialised areas is an integral part of building a broader culture of training in the industry, which emphasises skill acquisition and development.

The way training is delivered is also critical. It is important that providers that deliver training do not use a lock step approach to delivery, but provide a balance of skills that help the productivity on the work site, as well as the theory necessary to underpin those skills. In the past, a common complaint has been that too much of the early part of apprentice training focussed on the theory part of the program.

Recommendation 10

The Working Group recommends that Governments continue to work with industry to fully implement national consistency in the development and delivery of the Australian Training Framework.

Recommendation 11

The Working Group recommends that industry and government develop a strategy to quantify and market the benefits of the National Training Framework to industry stakeholders. A critical element of the strategy would be to conduct forums with stakeholders.

Recommendation 12

The Working Group recommends that strategies be developed to improve linkages between the building and construction industry and training providers.

9. Industry and school linkages

As discussed earlier, the composite building and construction industry has a poor image among the general population. Within the school environment, visits by industry leaders who can promote the broader building and construction trades and provide positive role models, will help to attract quality apprentice candidates, including those from non-traditional backgrounds. Ideally these promotional efforts will target areas where skill shortages are emerging or are forecast to emerge.

In addition, students interested in selecting Vocational Education and Training (VET) in schools should have access to on-the-job learning to introduce them to aspects of the industry and enable them to achieve competencies while they complete their secondary schooling. It will also provide them with an opportunity to see whether they wish to pursue a career in the industry without having to make the commitment of an apprenticeship, thus providing both student and employer with greater flexibility. This option is available under the various Training Packages at AQF I and AQF II.

The Working Group identified the building and construction industry as one where the young have not pursued school-based apprenticeships. The Working Group identified several of the industry-specific issues that reduced the effectiveness of these arrangements. These include the need for a regular progression through a range of sites with resulting transport difficulties for young people. Also the performance focus on outcomes for business, makes the industry reluctant to accept disruption to working practices and makes the part-time approach difficult.

The careers and VET in Schools options are premised on strong linkages between industry and schools. The partnership model serves other industries well, and work to advance this strategy has already started under the Business Education Partnership Advocate (BEPA) project. This also falls under the Commonwealth's Enterprise and Career Education policy direction that brings a range of initiatives together to ensure that flexible pathways are available to young people that will motivate them into something which is positive and constructive for them, as well as for the businesses that are taking an active role in their partnerships.

There is also a strong desire to integrate industry advice with other forms of advice via career advisers and the New Apprenticeship Centres to provide a team who can effectively sell the industry's message in the schools. This is based on appropriate careers information, advice and products being available.

Under the Business Education Partnership Advocate (BEPA) project, HIA and MBA have had funding for two people, however given the enormous coverage of the industry, additional capacity is urgently required. The sorts of activities occurring under the BEPA project includes the design and implementation of work readiness courses for students, lobbying for Training Packages to be accepted and implemented, as well as matching, mentoring, and guidance for students engaging in the system.

BEPA initiatives, while making good progress to overcome skills shortages problems in the industry, are not commensurate with the relative size of the various building industries, or funding related to each industry's potential to provide training. Services need to be coextensive with industry size and growth patterns. Additionally, these resources need to be provided for the longer term so that greater leverage can occur in this important area.

The link between school and industry must be forged if the school-based programs are to have relevance to the needs of industry. A strong message from the contractors and apprentices was that this relationship was the key to ensuring that future builders begin to develop their competence while still at secondary school. These competencies need to be strongly linked to the ongoing process of developing trade skills. The involvement of training providers who meet industry standards not only ensures the relevance of the training, but also helps provide continuity between training within and after leaving school.

It is also essential to ensure that the training that is provided matches the national training framework and that the qualifications that are attained by a student are fully recognised by all State/Territory vocational training authorities, other providers and employers.

Recommendation 13

The Working Group recommends that industry and government explore options for partnerships between the building and construction industry and schools, such as those currently provided by the BEPA project which has been a model of best practice for school/industry linkages.

Recommendation 14

The Working Group recommends that steps be taken to assist those involved in delivering VET in schools to have appropriate skills and to work cooperatively with building and construction Registered Training Organisations, to ensure the training that is delivered meets industry standards and that the qualifications that are attained by a student are fully recognised by all State/Territory vocational training authorities, other providers and employers. This recommendation fits with the thrust of the Commonwealth sponsored and nationally agreed framework for Enterprise and Career Education.

10. Group Training Companies

The growth of group training companies has been fuelled by New Apprenticeships in non-traditional areas. In the broader building and construction industry, the development of group training companies commenced in the early 1980s and they provide a training and development path for both large and small firms. Group training arrangements are now an accepted means for employing and training of apprentices across the whole building and construction industry.

The building and construction industry is currently contributing to the work of a National Review of Group Training Steering Committee. The purpose of the review is to provide advice to Ministers on future directions, issues and options for governments on group training services. The Working Group is strongly of the opinion that group training arrangements must be strengthened in order to maintain the viability of their operations. It is important that the Steering Group quickly form a view as to the role and responsibilities of group training companies and the funding models that should be applied.

The small business nature of the industry has meant a significant growth in the use of group training companies to access apprentices and trainees. Over 42% of the respondents to the survey indicated that they now used group training companies.

The reasons cited for using group training companies centred on:

- The flexibility offered by this method of employment;
- The reduction in administrative costs; and
- The reduced exposure to workers' compensation and other employment based taxes.

The fact that many firms were unsure of future business opportunities was also seen as a major impediment to making a commitment to long term training contracts, making the group training option more attractive.

The vast majority of the respondents indicated that this method of training had provided significant benefits to their firm's operations. In housing, in particular, both the employer and employee commented that they have developed long-term relationships that benefited both parties. Many apprentices and trainees who joined a host employer for a short period came to be considered indispensable and continued for a longer term than originally planned.

Recommendation 15

The Working Group recommends that government and industry consider future group training arrangements, including the examination of impediments to their effective operation and the availability of government support for these services, informed by the findings of the ANTA review of group training.

11. Remote and regional participation

While this report was not able to provide full details of skill requirements and formation in regional and rural areas, some key factors emerged. Anecdotal evidence suggests that construction personnel tend to relocate from country to metropolitan areas, where work can more readily be found.

Participants in the focus groups indicated that apprentices from the country had a better attitude to the job and understood the importance of having a good work ethic. However, apprentices from rural and regional areas reported significant problems in seeking work in urban areas. They were often unable to meet the living costs that would normally be met by their family, citing the high cost of accommodation and transport, as well as difficulties arising from being without the support of family and friends as disincentives to working in metropolitan areas.

The Working Group recommends that the structure of incentives for apprentices be examined in order to assist apprentices who are disadvantaged by their location.

It is recognised that finding training and employment opportunities for apprentices in rural and regional areas are more difficult than is the case in metropolitan centres. To address this situation, community organisations and government agencies should be encouraged to develop training mechanisms to make it possible for people to remain within their communities. For example, local councils, chambers of commerce and similar organisations might consider cooperative arrangements that provide training and employment opportunities in these regions.

Training flexibility in providing distance training, particularly through new electronic media, provides an opportunity to support training in regional and rural area. As the housing industry has the greatest presence in rural and regional areas, it provides an ideal pilot for these training initiatives. The Working Group recommends that Governments work with the industry to investigate and promote ways to providing training via distance education and through on-line techniques.

Recommendation 16

The Working Group recommends that industry and Government consider ways to assist apprentices who are disadvantaged by their location.

Recommendation 17

The Working Group recommends that local governments be encouraged to work with industry to develop employment and training strategies that meet the needs of people in rural and regional locations.

Recommendation 18

The Working Group recommends that the government and the industry examine practical ways of providing training via distance education through on-line services.

12. Role of the public sectors in training

Government demand accounts for a large proportion of the value of commercial and civil construction. Governments are major clients of these industries, accounting for about 40% of their total demand. Over the past ten years many Public Works Departments that had previously trained and supplied apprentices to the industry ceased to take on such trainees. The Working Group has been concerned about this change, as it believes that this practice made a significant contribution to the pool of trades available.

The Working Group considers that governments are well placed to encourage the development of the apprenticeship system by working closely with contractors in the commercial and civil construction industries to increase apprentice numbers and promote training outcomes.

Recommendation 19

The Working Group recommends that industry and government examine the processes and practices that will encourage public sector clients to contribute further to the investment in training in the industry.

13. Industry support and assistance

The Working Group considered the issue of attrition rates among apprentices and ways to reduce them. Studies by DETYA have shown the highest rate of attrition to be in the first three months of training and that it slows markedly after the first six months. The level of education possessed by an apprentice also had a significant bearing on a person's chance of dropping out, with the study showing that attrition increased sharply for those who had not completed Year 12.

Focus group participants commented that apprentices drop out for a variety of reasons, including peer and family pressure to pursue a more attractive career, poor career advice and inaccurate understanding of the nature of work in the industry.

Legislated Industry Training Funds currently exist in Tasmania, Western Australia, South Australia, Queensland and the Australian Capital Territory. A government funded feasibility study is under way in New South Wales, which is considering the establishment of such a fund.

Some group focus participants commented that a properly run training fund is valuable for both entry level training and training of the existing workforce. However, the national experience of funds has been mixed. While some States have worked to

ensure that funds are spent on the firms from who the levies are raised other states are less transparent, which is of concern to industry. A number of participants commented that they would prefer to see the funds spent directly to assist their firm's training effort rather than spread generally across the industry.

The Working Group considers that suitable expenditures on training activities, such as apprenticeships, should result in exemptions to the state-based levy system. This would encourage the uptake of in-house training activities in the states where levies apply. It also allows firms who consider that they receive scant benefit from the levy to consciously direct the training spending towards the immediate needs of their firm.

Recommendation 20

The Working Group recommends that the building and construction industry work with governments to examine ways of reducing apprentice attrition rates.

Recommendation 21

The Working Group recommends that all building and construction funds be reviewed to maximise the benefits to contributing firms.

14. Industry intelligence

Current methods of collecting data of relevance to the industry do not always offer a full or correct picture of the real situation. The existing occupational classifications used by ABS, for example, do not reflect the real break-up of the tasks carried out on a building project, nor do they reflect the very real differences between the housing industry and the commercial and civil construction industries.

The demands placed on an apprentice working in the large-scale projects, high-rise, large firm, parallel sequenced, employee-based environment of the construction industry are entirely different from the demands placed on an apprentice working in the small-scale projects, local, sequential processes, small business, subcontract-based environment of the housing industry. Despite the magnitude of these industry differences, the official statistics fail to differentiate between apprentices in the same trade working in the different industries.

The composite building and construction industry requires a method of collecting data that will enable action to be taken to address demand for particular skills as it arises. The working group urges Governments to develop more accurate classification systems and collection methods.

The Working Group finds that the quality and range of information available to industry and Government leaders must be improved if informed decisions are to be made about the industry's future. A review of current data sources relevant to the broader industry will enable the best data collection methods to be identified and gaps to be addressed. This will ensure that the right information is collected and distributed to stakeholders.

Recommendation 22

The Working Group recommends that industry and Government provide advice to agencies responsible for the collection and analysis of industry data, to more accurately reflect the differences in the way that the industry operates.

Recommendation 23

The Working Group recommends that the range and quality of existing industry data, be reviewed to better identify the skills needs and the training response required by the industry. This data should also allow regional skill differences to be analysed.

15. Industry advisory arrangements

Industry Training Advisory Boards (ITABs) were established in the 1970's to provide strategic industry training advice and comment on training issues to government. While the Working Group considers that an effective advisory network is essential, concerns have been raised by many stakeholders about the effectiveness and functioning of the current structure. Concerns have also been expressed about the clarity of roles of ITABs as well as the relationship between the national and state bodies.

The situation is further complicated because in some states/territories there are strong links between ITABs and state based training levies. As well in some states there is no effective ITAB and in others a lack of unity and resources hamper their operation.

To achieve an effective ITAB network that provides accurate and consistent industry advice, it must achieve a sense of ownership by participants that will provide a single, nationally focused advisory arrangement that is able to give authoritative advice to governments for each of the major activity groups in the industry, ie housing, commercial and civil construction. This requires an industry advisory structure that reflects the various activities that occur across the building and construction industry.

The Working Group notes that ANTA is at present conducting a review of group training, the findings of which may be relevant to the aims of this report.

Recommendation 24

The Working Group recommends that government and industry develop a strategy to identify the most appropriate advisory arrangements to respond to the needs of the industry, informed by outcomes of the ANTA review of industry advisory arrangements.

16. Future skill initiative projects

Australia's building and construction industry is composed of several distinct industries that have interrelationships in their training arrangements. As such, the Working Group decided that the industry was too large and complex for the skill requirements of the whole industry to be covered in the one study and therefore decided to concentrate on the on-site disciplines, mainly in the trades sector.

The Working Group nonetheless believes that other parts of the industry also need to be examined and that individual reports on each should be produced.

Firms who are diversifying their activities need additional skills among their staff. It is important to ascertain the nature and direction of these trends. Civil and metal engineering are responsible for a large part of the industry's output, and it is important to know more about the skill requirements of these areas.

Recommendation 25

The Working Group recommends that the Task Force investigate the skill requirements of the engineering construction and metal engineering firms.

17. Innovation

The competitive nature of the building and construction industry means that cost-saving innovations are taken up quickly by the industry. Often a new product generates new work practices or vice versa. As a result, industry practice is a continuing evolving beast as it responds to the industry's ingenuity.

The Working Group proposes that the interplay between product and process innovation in the industry is an important driver of growth. The process of skill formation in the industry could be better targeted if it was informed by a better understanding of this cycle of innovation. A focus on the nexus between training, practices and products would enable the industry to adopt an active role in fostering the dissemination of innovation. The role of knowledge dissemination in an industry with the extended and diverse supply chains of the building and construction industry should not be left to chance.

One of the important challenges that face the building and construction industry is embracing new communication and information technologies. Building on-line is estimated to offer efficiency savings of between 10% and 20%. Building on-line is not just about efficiency savings; it also offers greater service for customers. On-line building offers dynamic scheduling and estimation. Customers wanting to alter design or other specifications will be able to see instantly the impact on costs and timetables.

The industry's flexible project-based operations already reflect a responsive new economy structure, yet a significant proportion of the smaller business operators remain to be convinced of the benefits of on-line delivery. Leadership is needed to establish successful models and an industry standard to demonstrate the potential of building on-line. Once this demonstration can be established, these cost savings will rapidly be adopted by an industry with low margins.

The industry's structure, with thousands of small firms militates against the spontaneous emergence of a common platform, hindering the industry's drive to greater efficiency and customer focus.

Recommendation 26

The Working Group recommends that research be undertaken to investigate the relationship between building product and process innovation and skill needs.

18. Industry licensing

At present, there is little commonality in industry licensing/registration systems between States. From an industry perspective, this confounds the benefits that accrue from the increased competitiveness of a borderless market.

Consumer protection objectives rather than a process of technical skill accreditation have largely driven industry licensing systems. Consequently they are not integrated with the building regulation system, the Building Code of Australia (BCA), or with the national training reform agenda for the industry. The latter elements, in particular, underpin the 'technical' skill requirements and competencies for industry participants.

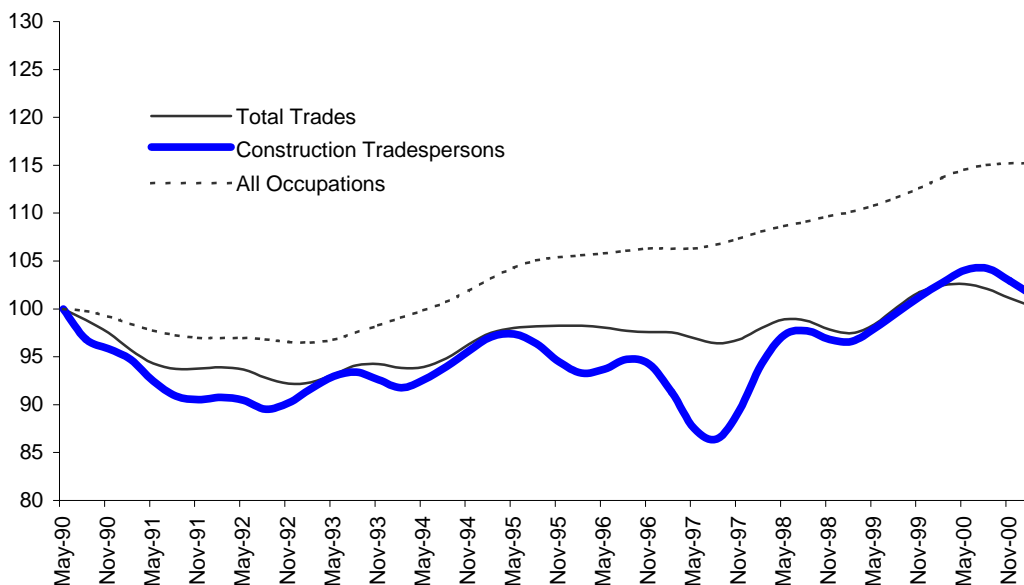
Recommendation 27

The Working Group recommends that governments and industry work to ensure that industry licensing be nationally consistent, and that licensing arrangements be reflected in Training Package developments.

1. Overview of construction occupations

- Construction trades is the largest employer of the trades groups, employing some 285,400 persons in February 2001. This was 24.2% of all Trades employment and 3.2% of total employment.
- Three subgroups make up the construction trades:
 - 61.4% are in structural construction trades, of which 51% are carpenters and joiners;
 - 19.5% are final finishes construction tradespersons;
 - 19.3% are plumbers.
- The cyclical nature of building activity is reflected in employment trends and job vacancies. There has been longer term growth in employment in construction trades, and future training arrangements should take account of the larger size of the employment base.
- Employment in construction trades increased by 13,600 (5%) over the two years to February 2001 (see Figure 1). Over the five years to February 2001 construction trades employment rose by 22,900 (8.7%).
- The Skilled Vacancies Index (SVI) maintained by DEWRSB recorded a rise of 61.1% over the five years to February 2001, despite job vacancies falling since April 2000.

Figure 1: Construction trades, total trades and total employment 1990-2001 (indexed May 1990 = 100)



Source: DEWRSB trending of ABS, Labour Force Survey data

- Shortages in construction trades reflect fluctuations in building activity and industry growth, the age profile of tradespersons and tradespersons changing occupations.

- Just over 80% of construction tradespersons are employed in the construction industry; manufacturing is the next largest, with 7%.
- Some 656,000 persons were employed in the construction industry in February 2001. The industry grew by an average of 1.5% per year over the 10 years to February 2001.
- In the year to February 2001, employment in the industry fell by 5.4%.
- Employees and contractors in the construction trades are slightly less likely to change occupations than the trades group overall. Such change is often in order to advance careers.
- Slightly more than half of all construction tradespersons working in a non-trade occupation were employed in a more highly skilled occupation, especially associate professional, managerial and supervisory positions.
- In part reflecting occupational mobility and the physical demands of building work, the age profile of most construction trades is a little younger than that of all trades and all occupations.
- Age profiles vary widely between specific construction trades. Roof slaters and tilers tend to be younger than average, while painters and decorators have the largest proportion aged 45 years and over.
- Shortages of construction tradespersons have eased over the last year in tandem with the reduction in dwelling activity. DEWRSB's latest assessment of skill shortages in the trades (February 2001 and based mainly on the second half of 2000) indicates that none of the construction trades were in shortage nationally, though some of the trades were in shortage in certain states (see Table 1).

Table 1: Construction trades skill shortages by state (assessed by DEWRSB)

TRADESPERSONS	NSW	VIC	QLD	SA	WA	TAS	NT	National
Carpenter and Joiner		(1)				R (1)		
Fibrous Plasterer					S (e)	S		
Roof Slater and Tiler		S						
Bricklayer							S	
Solid Plasterer		S		S				
Wall and Floor Tiler				S (e)				
Plumber				S (e)	R (2)			

M = Metropolitan S = Statewide R =Regional N = National (e)= Shortage easing over 2001

(1) VIC: shortage restricted to stair builders. TAS: shortages in southern Tasmania

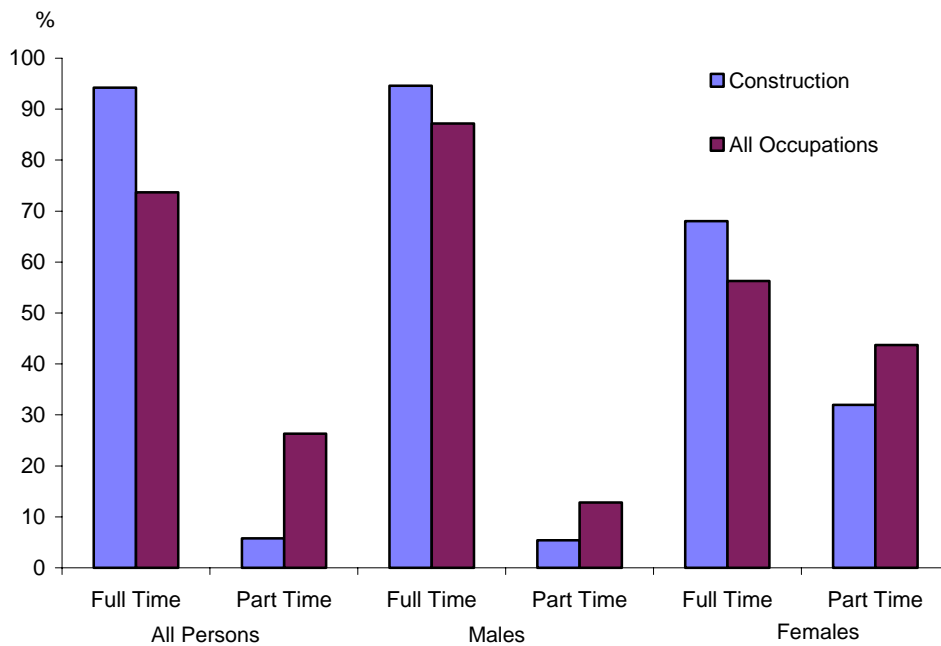
(2) WA: shortage of full grade gasfitting and plumbing.

- Migration plays a small though important role in providing construction skills for Australia. In 1999-2000 the net gain from this source was around 900.

2. Employment/full-time/part-time

A very high proportion of construction tradespersons are employed on a full time basis. Figure 2 shows that 95% of male construction tradespersons are employed full time, compared to 87% of males in all occupations. 68% of female construction tradespersons are employed full time, compared to 56% of females in all occupations.

Figure 2: Full time and part time employment for construction tradespersons and all occupations



Source: ABS, Labour Force Survey data

3. Occupational coverage

This statistical overview covers the major group construction/building trades as classified in the Australian Standard Classification of Occupations (ASCO). It includes the sub-groups structural construction tradespersons, final finishes construction tradespersons and plumbers. It also presents information on the main on site, non-trade construction occupations.

4. Employment

Construction trades is the largest employer of the trades groups. Some 285,400 persons were employed in the construction trades in February 2001, representing 24.2% of all trades employment and 3.2% of total employment.

- Many other workers are employed in association with, and depend upon the level of activity in, the construction trades.

5. Employment distribution

Just over 80% of construction tradespersons are employed in the construction industry; manufacturing is the next largest employing industry, with 7%.

Construction trades are made up of three subgroups:

- 61.4% of construction tradespersons are in structural construction trades, of which 51% are carpenters and joiners;
- 19.5% are final finishes construction tradespersons;
- 19.3% are plumbers.

See Figure 3. Further information is provided in Table 2.

Figure 3: Employment in construction trades, February 2001

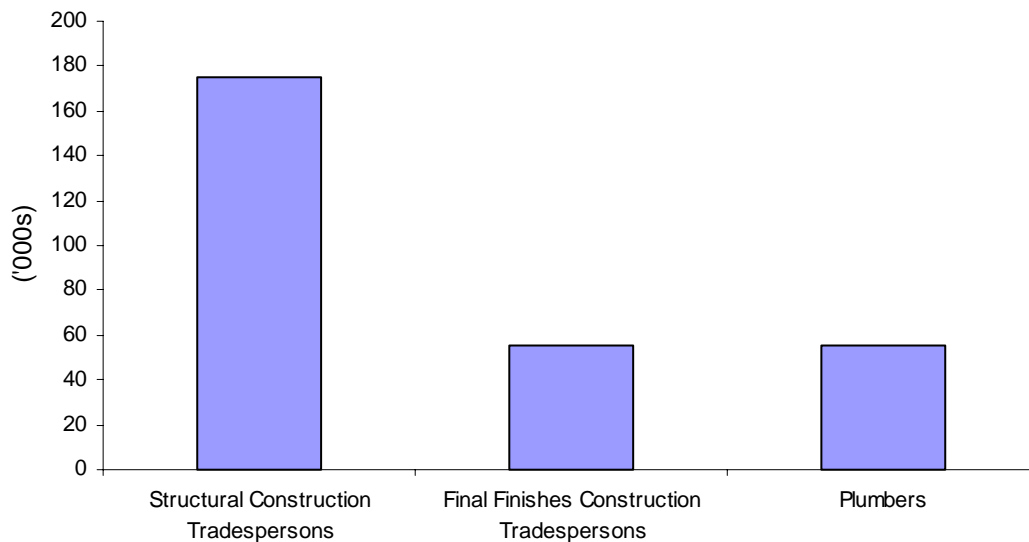


Table 2: Employment by trade in construction trades, February 2001

TRADE	EMPLOYED (000)	PERCENTAGE OF CONSTRUCTION TRADES EMPLOYMENT
Structural Construction Tradespersons	175.3	61.4
Carpentry and Joinery Tradespersons	89.2	31.2
Fibrous Plasterers	26.0	9.1
Roof Slaters and Tilers	9.9	3.5
Bricklayers	28.9	10.1
Solid Plasterers	5.4	1.9
Wall and Floor Tilers and Stonemasons	15.9	5.6
Final Finishes Construction Tradespersons	55.8	19.5
Painters and Decorators	40.8	14.3
Signwriters	7.0	2.4
Floor Finishers	7.9	2.8
Plumbers	55.0	19.3
Total Construction Trades	285.4*	100.0*

Source: DEWRSB trending of ABS, *Labour Force Survey* data

*Totals may not add precisely due to rounding.

Some 169,600 persons are employed in the main non-trade on site construction occupations. This group represented 1.9% of total employment in February 2001.

Three occupations account for around 70% of non-trade, on site construction employment in February 2001. These are mobile construction plant operators, construction and plumbing assistants and concreters, accounting for 31.8%, 22.3% and 14.4% respectively of non-trade on site construction employment (see Table 3).

Table 3: Non-trade on site construction employment, February 2001

OCCUPATION	EMPLOYED (000)	PERCENTAGE OF NON-TRADE ON SITE CONSTRUCTION EMPLOYMENT
Mobile Construction Plant Operators	54.0	31.8
Crane, Hoist and Lift Operators	10.0	5.9
Structural Steel Construction Workers	10.8	6.4
Insulation and Home Improvements Installers	13.8	8.1
Earthmoving Labourers	4.5	2.7
Paving and Surfacing Labourers	10.5	6.2
Survey Hands	3.8	2.3
Construction and Plumbers Assistants	37.8	22.3
Concreters	24.4	14.4
Total Non-Trade On site Construction	169.6	100.0

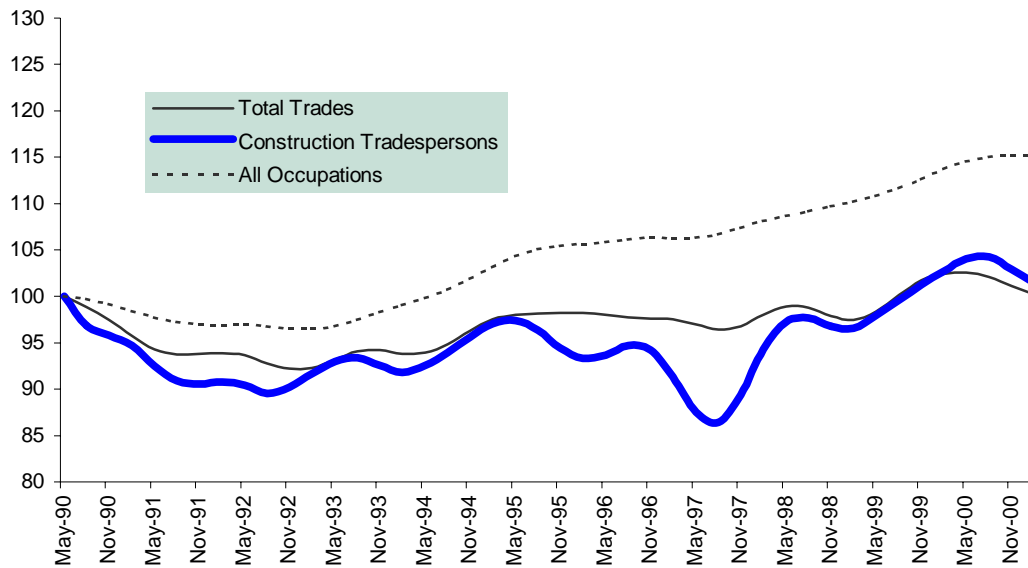
Source: DEWRSB trending of ABS, Labour Force Survey data

6. Employment growth

Construction trades employment increased by 13,600 (5%) over the two years to February 2001 (see Figure 3). Over the five years to February 2001 construction trades employment rose by 22,900 (8.7%), with the strongest growth for fibrous plasterers.

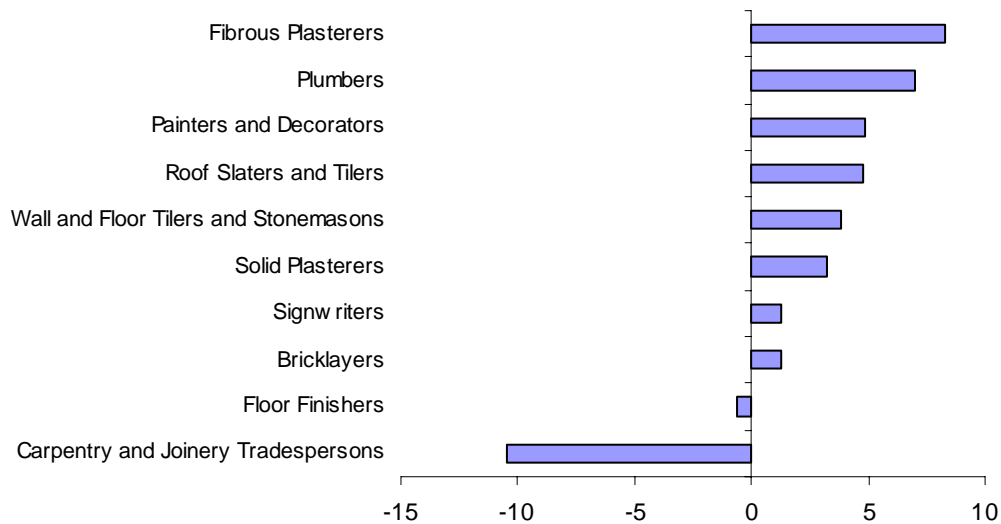
- Employment fell for carpentry and joinery tradespersons and floor finishers (see Table 4 and Figure 4).
- Employment in construction trades in February 2001 was 7.1% higher than ten years ago.

Figure 3: Construction trades, total trades and total employment 1990-2001 (indexed May 1990 = 100)



Source: DEWRSB trending of ABS, Labour Force Survey data

Figure 4: Employment change for construction trades, five years to February 2001 ('000)

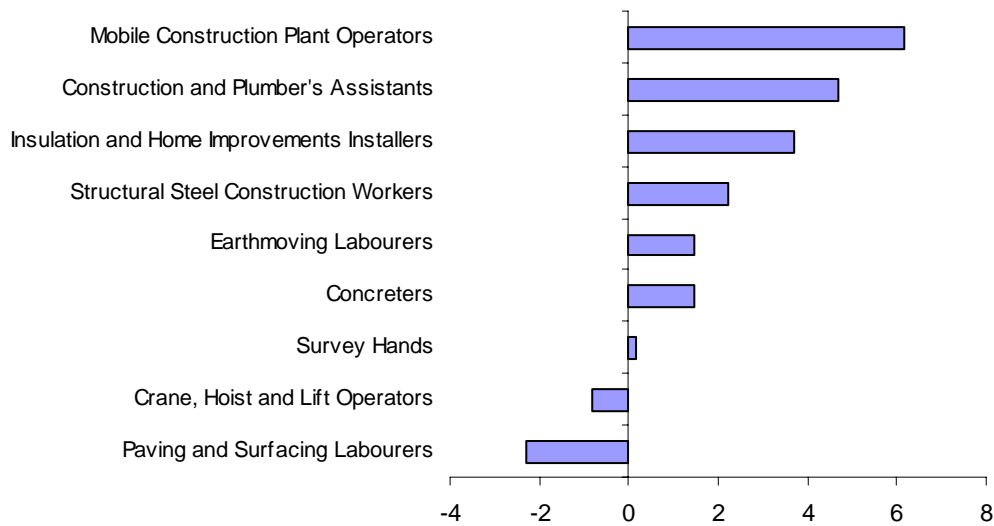


Source: DEWRSB trending of ABS Labour Force Survey data

In the two years to February 2001, employment increased for all non-trade construction occupations except crane, hoist and lift operators and insulation and home improvement installers (see Table 3). Over the five years to February 2001 employment increased for most non-trade construction occupations; the strongest growth was for mobile construction plant operators.

- Employment fell for crane, hoist and lift operators and paving and surface labourers (see Table 3 and Figure 5).
- Employment increased for five of the nine non-trade construction occupations over the ten years to February 2001.

Figure 5: Employment change for non-trade construction occupations, five years to February 2001 (000)



Source: DEWRSB trending of ABS Labour Force Survey data

Table 4: Employment change for individual construction trades and on site non-trade construction occupations to February 2001

Trade	Employed	2 years *		5 years *		10 years *	
	Feb 2001 (000)	(000)	(%)	(000)	(%)	(000)	(%)
Structural Construction	175.3	11.8	7.2	10.9	6.6	14.0	8.7
Carpentry & Joinery Tradespersons	89.2	0.5	0.6	-10.5	-10.5	-7.7	-8.0
Fibrous Plasterers	26.0	3.7	16.6	8.3	46.9	8.4	47.9
Roof Slaters and Tilers	9.9	2.8	38.8	4.8	92.0	4.9	98.2
Bricklayers	28.9	-0.4	-1.4	1.2	4.5	0.1	0.3
Solid Plasterers	5.4	1.3	32.1	3.2	150.3	3.3	153.9
Wall and Floor Tilers and Stonemasons	15.9	3.9	32.3	3.9	31.9	5.1	46.8
Final Finishes Construction	55.8	1.5	2.8	5.5	11.0	2.6	4.9
Painters and Decorators	40.8	2.0	5.1	4.8	13.4	1.8	4.6
Signwriters	7.0	2.0	41.5	1.3	22.0	0.8	12.5
Floor Finishers	7.9	-2.5	-24.0	-0.6	-6.9	0.0	0.2
Plumbers	55.0	0.9	1.7	6.6	13.6	2.6	4.9
All Construction Trades	285.4	13.6	5.0	22.9	8.7	18.9	7.1
Non-Trade On Site Construction Occupations							
<i>Mobile Construction Plant Operators</i>	54.0	4.5	9.0	6.1	12.9	11.3	26.5
Crane, Hoist and Lift Operators	10.0	-0.3	-2.5	-0.8	-7.5	0.7	8.0
Structural Steel Construction Workers	10.8	0.4	4.0	2.2	26.1	-3.3	-23.2
Insulation and Home Improvements Installers	13.8	-0.6	-4.0	3.7	36.7	-2.7	-16.3
Earthmoving Labourers	4.5	0.6	16.1	1.5	48.6	1.8	64.1
Paving and Surfacing Labourers	10.5	2.3	28.6	-2.3	-17.8	-6.6	-38.7
Survey Hands	3.8	2.8	273.6	0.2	4.7	-0.5	-11.0
Construction and Plumbers Assistants	37.8	1.6	4.4	4.7	14.2	4.1	12.0
Concreters	24.4	0.5	2.2	1.5	6.3	2.8	13.1

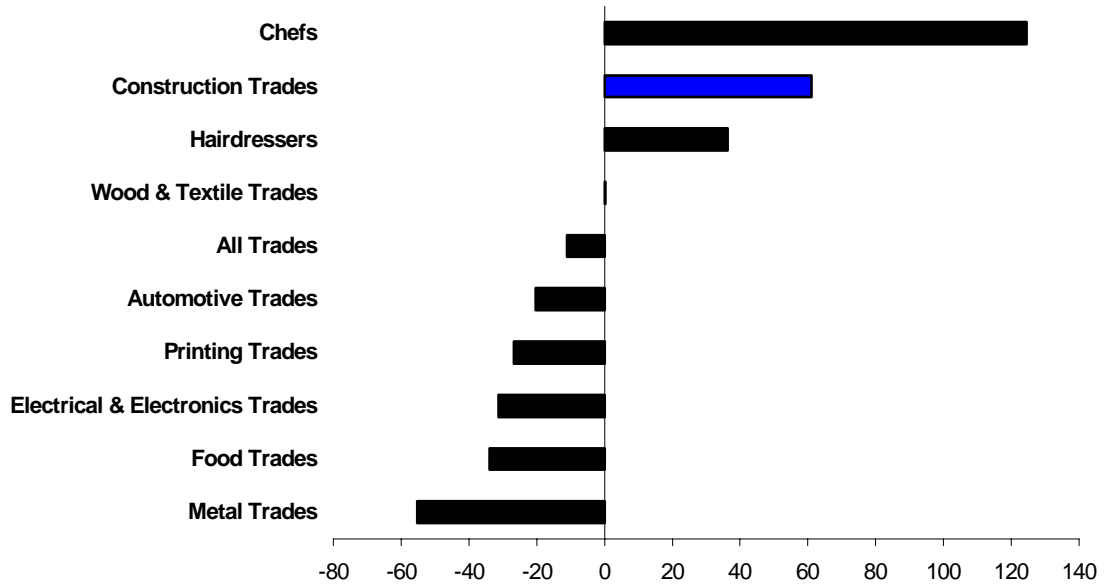
* DEWRSB trending of ABS *Labour Force Survey* data

7. Job vacancies

Job vacancies for construction trades have fluctuated significantly, reflecting the cyclical nature of building and construction activity.

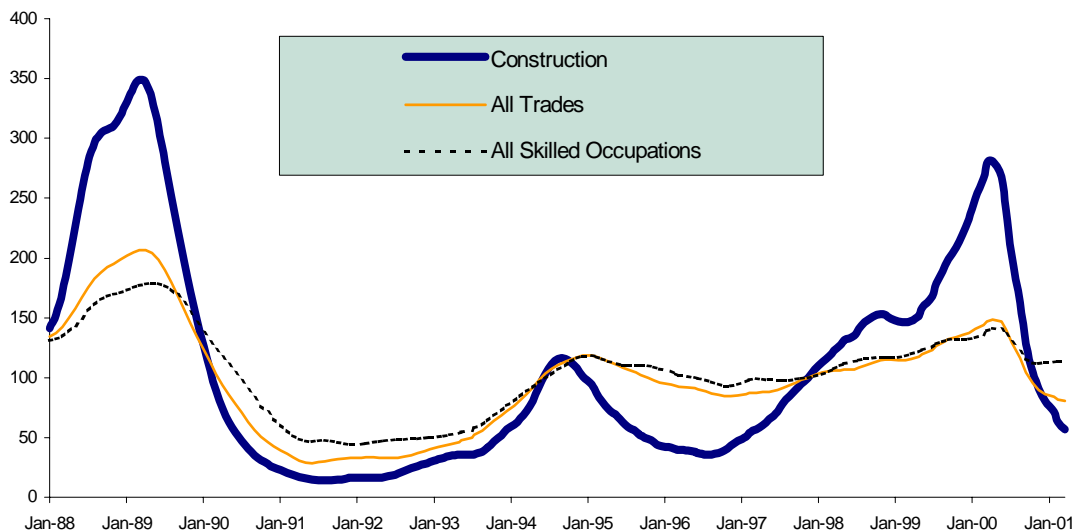
- The *Skilled Vacancies Index (SVI)* maintained by DEWRSB recorded a fall of 56.9% for the construction trades over the two years to February 2001, compared with a fall of 28.7% for all trades.
- Over the five years to February 2001 vacancies for the construction trades rose by 61.1%, while vacancies all trades fell by 11% (see Figures 6 and 7).

Figure 6: Growth in trades groups and total trade vacancies over the five years to February 2001 (%)



Source: DEWRSB, Skilled Vacancies Index (part of monthly Vacancy Report)

Figure 7: Trends in skilled vacancies - construction trades, all trade vacancies, all skilled occupations January 1988 to February 2001



Source: DEWRSB, Skilled Vacancy Index

8. Age profile

The age profile of most Construction Trades is a little younger than that of all trades and occupations, though age profiles vary between specific construction occupations (see Table 5 and Figure 8).

- Painters and Decorators have the largest proportion (35.4%) aged 45 years and over. This compares with 26.9% in the oldest group for all trades occupations.
- Ageing of the labour force is also significant among signwriters and floor finishers.
- Roof slaters and tilers tend to be younger than average (34.4% aged 15 to 24, and only 12.4% in the oldest age group), possibly because the physical demands of the job make it difficult for older workers.

The age profiles of non-trade construction occupations also vary quite widely between specific occupations. Some occupations have a relatively young profile, while others are skewed towards older age groups (see Table 5 and Figure 9).

- Construction and plumbing assistants, survey hands and earthmoving labourers have relatively young profiles.
- Around 50% of survey hands are aged 15 to 24 years.
- Crane, hoist and lift operators, paving and surfacing labourers, mobile construction plant operators and structural steel construction workers have a relatively old age profile.
- 45.5% of crane, hoist and lift operators and 41.2% of mobile construction plant operators are aged 45 years or over.

Table 5: Age profile of construction trades and non-trade on site construction occupations

Occupation	Age Range (% share)			
	15-24	25-44	45-54	55 & Over
<i>Structural Construction Tradespersons</i>				
Carpentry and Joinery Tradespersons	25.4	47.9	16.4	10.3
Fibrous Plasterers	22.5	55.7	14.6	7.1
Roof Slaters and Tilers	34.4	52.7	11.6	0.9
Bricklayers	19.9	56.7	15.0	8.4
Solid Plasterers	12.8	63.1	14.1	10.0
Wall and Floor Tilers and Stonemasons	19.6	55.0	13.1	12.4
<i>Final Finishes Construction Tradespersons</i>				
Painters and Decorators	16.9	47.8	23.4	11.9
Signwriters	18.6	49.9	17.5	14.3
Floor Finishers	23.2	47.0	22.8	7.1
<i>Plumbers</i>	23.2	47.3	19.6	9.9
<i>Non-Trade Construction Occupations</i>				
<i>Mobile Construction Plant Operators</i>	8.9	49.9	28.5	12.7
Crane, Hoist and Lift Operators	3.6	50.7	28.1	17.4
Structural Steel Construction Workers	15.6	56.3	23.3	5.3
Insulation and Home Improvements Installers	15.2	59.1	16.1	9.6
Earthmoving Labourers	24.0	64.3	3.9	8.4
Paving and Surfacing Labourers	13.1	50.2	28.1	8.8
Survey Hands	50.2	35.5	8.8	6.6
Construction and Plumbers Assistants	31.8	51.7	12.4	4.4
Concreters	21.7	60.3	11.3	6.7
<i>All Trades</i>	21.2	51.9	17.9	9.1
<i>All Occupations</i>	18.4	49.3	21.7	10.5

Source: ABS, *Labour Force, Australia*, average 2000

Figure 8: Percentage of tradespersons aged 45+ years

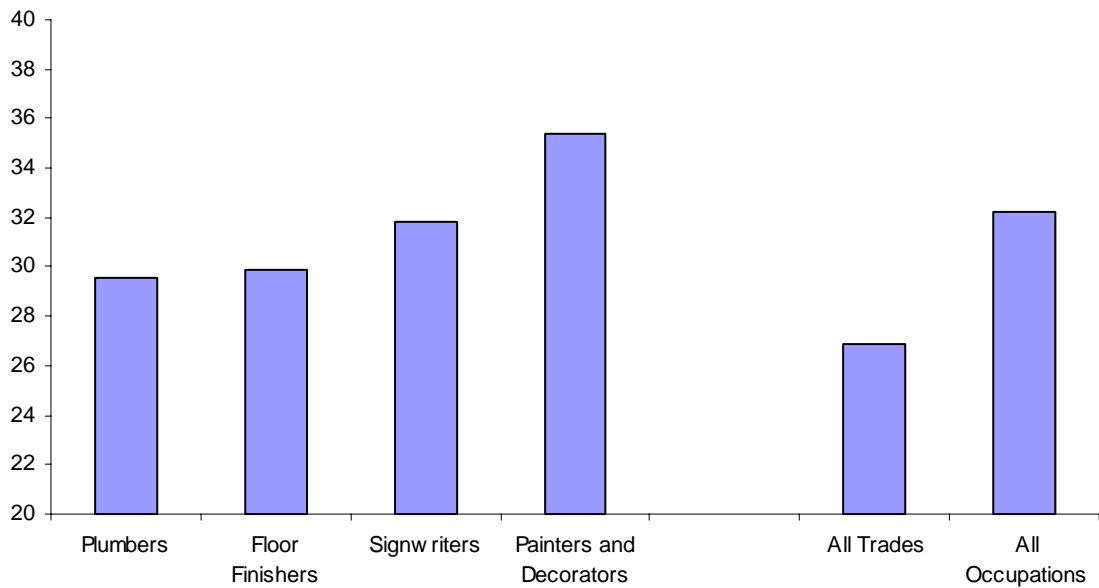
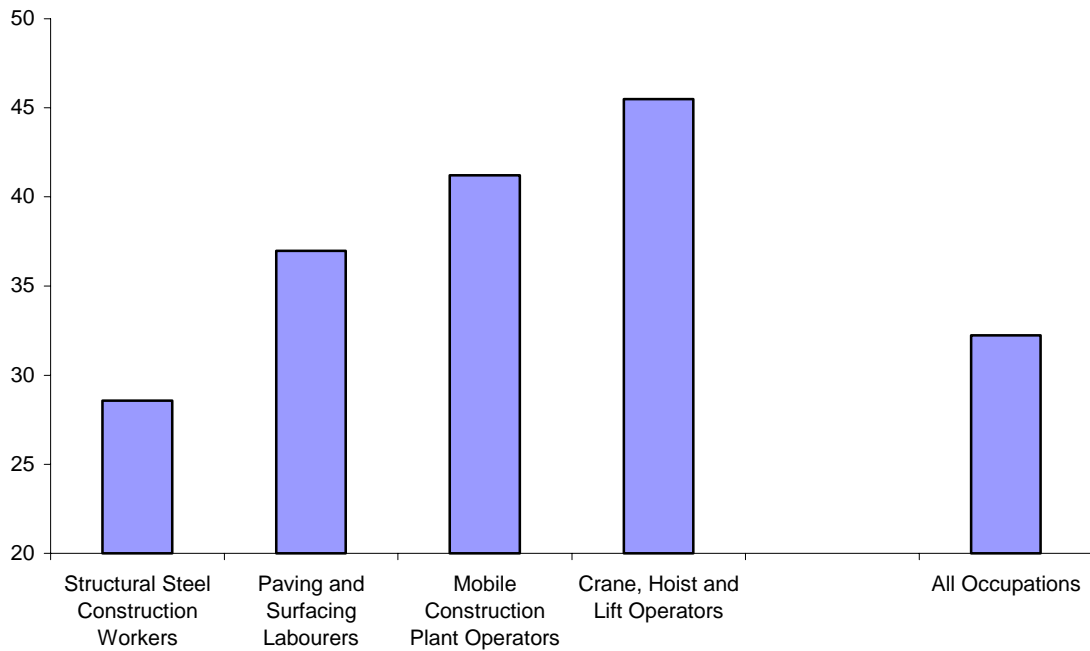


Figure 9: Percentage of non-trades construction occupations aged 45+ years



Source: ABS, *Labour Force, Australia*, average 2000

9. Gender

Chart 1: Distribution of construction trades and all occupations by gender, average 2000

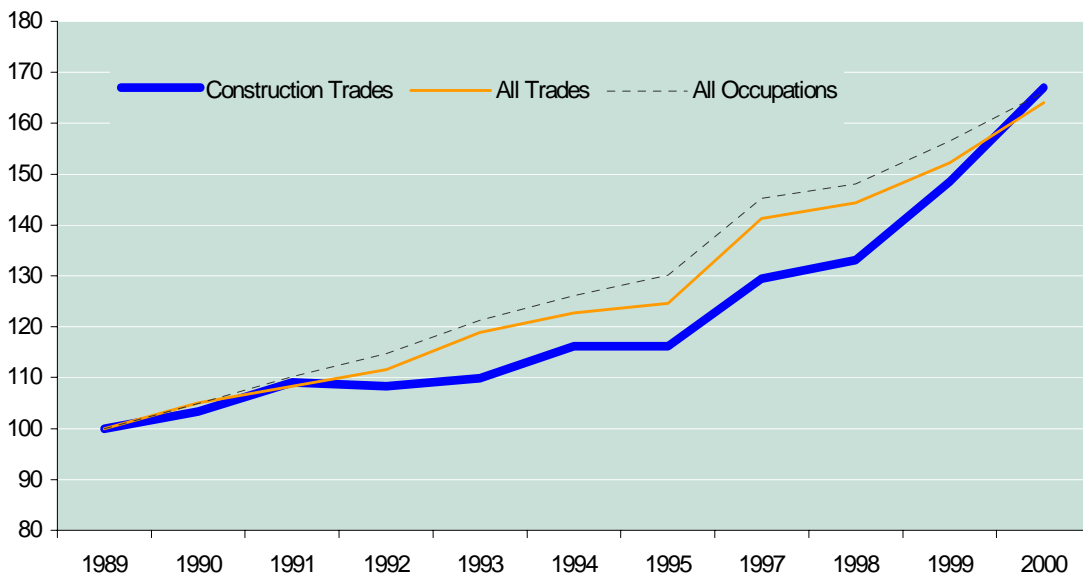


Source: ABS Labour Force Survey data

10. Earnings

The mean weekly earnings of construction trades employees in 2000 were higher than that of trades generally, but lower than that of all employees (see Table 6). Wages in the construction trades grew relatively strongly in the late 1990s (see Figure 10).

Figure 10: Indexed mean weekly earnings for construction trades, all trades and all occupations, 1989–2000



Source: ABS, Employee Earnings, Benefits and Trade Union Membership, Cat No 6310.0

Table 6: Mean weekly earnings for construction trades and non-trade on site construction occupations, all trades and all occupations, 1997–2000 (\$)

Occupation	1997	1998	1999	2000
<i>Structural Construction Tradespersons</i>	589	615	705	681
Carpentry and Joinery Tradespersons	582	601	665	707
Fibrous Plasterers	648	625	651	854
Roof Slaters and Tilers	*548	*616	691	*1,387
Bricklayers	668	645	891	639
Solid Plasterers	*419	*558	*1,974	688
Wall and Floor Tilers and Stonemasons	*499	669	676	632
<i>Final Finishes Construction Tradespersons</i>	580	593	579	720
Painters and Decorators	614	609	581	741
Signwriters	*557	*483	*495	*615
Floor Finishers	*515	*564	594	*516
<i>Plumbers</i>	633	616	728	750
<i>Construction Trades</i>	598	612	686	770
<i>All Trades</i>	627	641	676	729
Mobile Construction Plant Operators	752	691	715	816
Crane, Hoist and Lift Operators	805	876	855	984
Structural Steel Construction Workers	932	896	950	913
Paving and Surfacing Labourers	562	594	621	605
<i>All Occupations</i>	701	716	757	801

Source: ABS, Employee Earnings, Benefits and Trade Union Membership, Cat No 6310.0

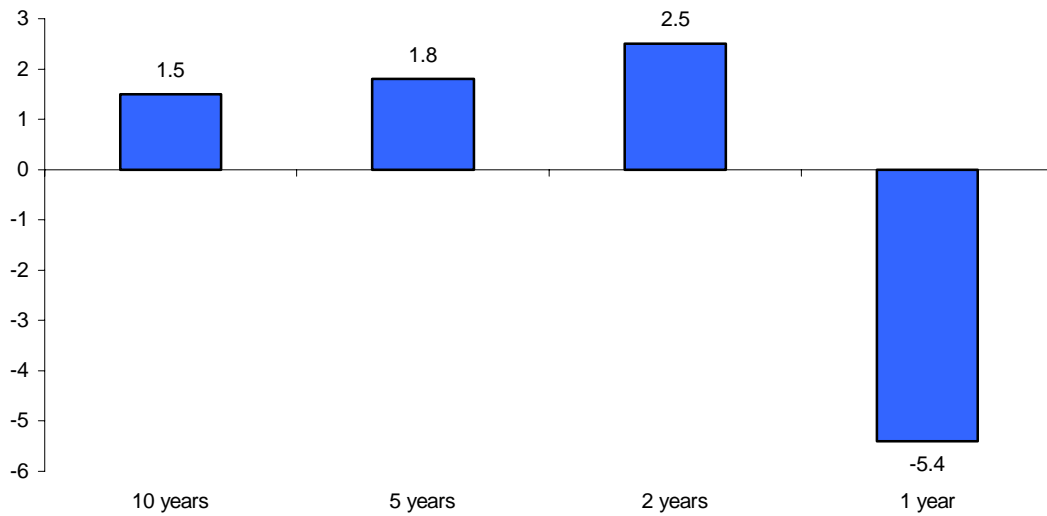
* Indicates small occupation where relative standard errors for mean wages are very high.

11. Construction industry – annual employment change

Some 656,000 persons were employed in the Construction industry in February 2001. The industry grew by an average of 1.5% per year over the 10 years to February 2001.

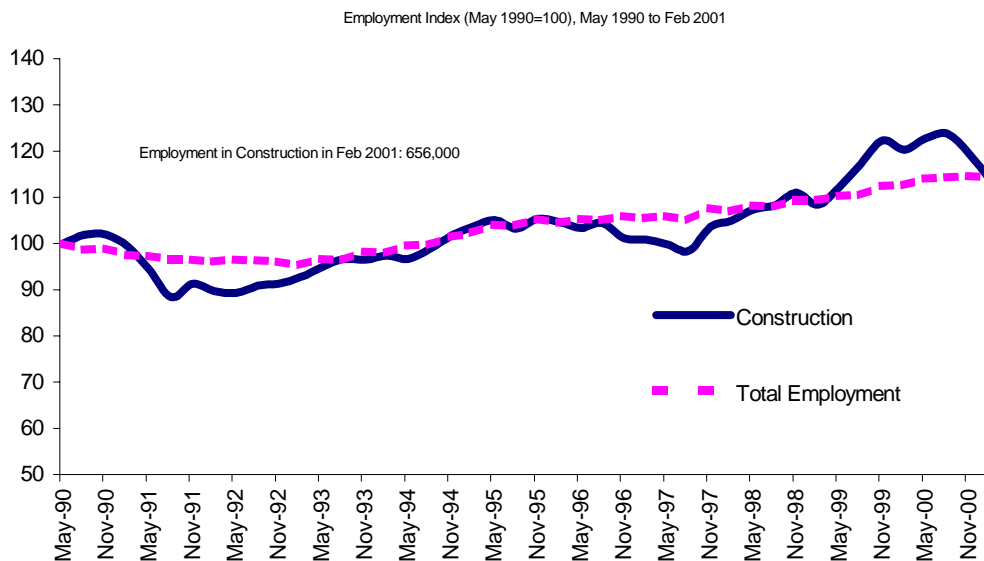
- In the year to February 2001 employment in the industry fell by 5.4% (see Figures 11 and 12).

Figure 11: Construction industry – annual employment change (%) to February 2001



Source: DEWRSB trending of ABS, *Labour Force Survey data*

Figure 12: Indexed employment for the construction industry and total employment, May 1990 to February 2001

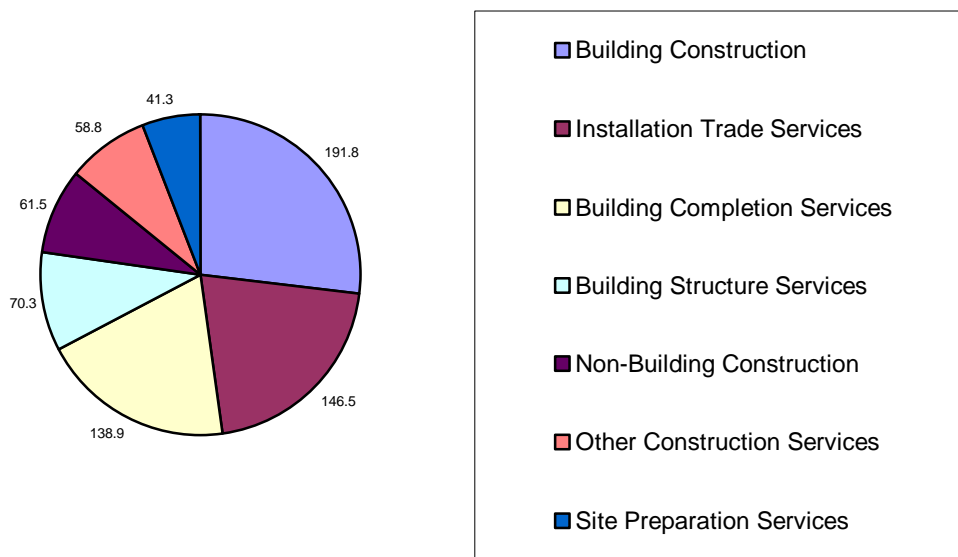


Source: DEWRSB trending of ABS, *Labour Force Survey data*

The largest parts within the construction industry are building construction (house and other residential construction and non-residential buildings, such as motels and hospitals), building completion services (plastering, carpentry, tiling, carpeting, painting and glazing) and installation trade services (plumbing, electrical, air conditioning and heating). These parts accounted for 28.3%, 21.9% and 21.2% respectively of construction industry employment at February 2001 (see Figure 13).

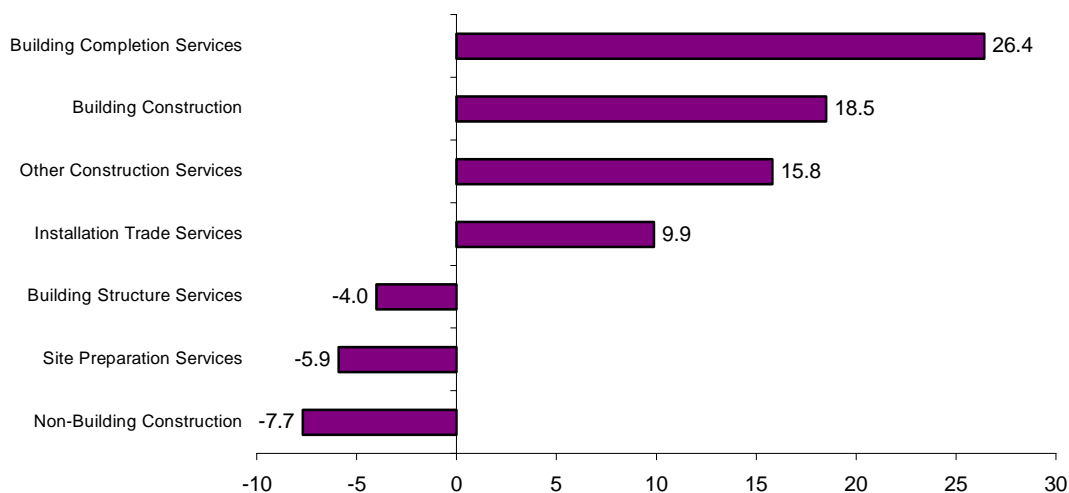
- The largest growth in employment over the five years to February 2001 was in Building Completion Services, which grew by 26,400 (see Figure 14).
- The strongest rate of growth in employment over the five years to February 2001 was in Other Construction Services (landscaping and special contract work such as awning and insulation installation), which rose by 44% (see Figure 15).

Figure 13: Construction industry employment by sector, February 2001 (000)



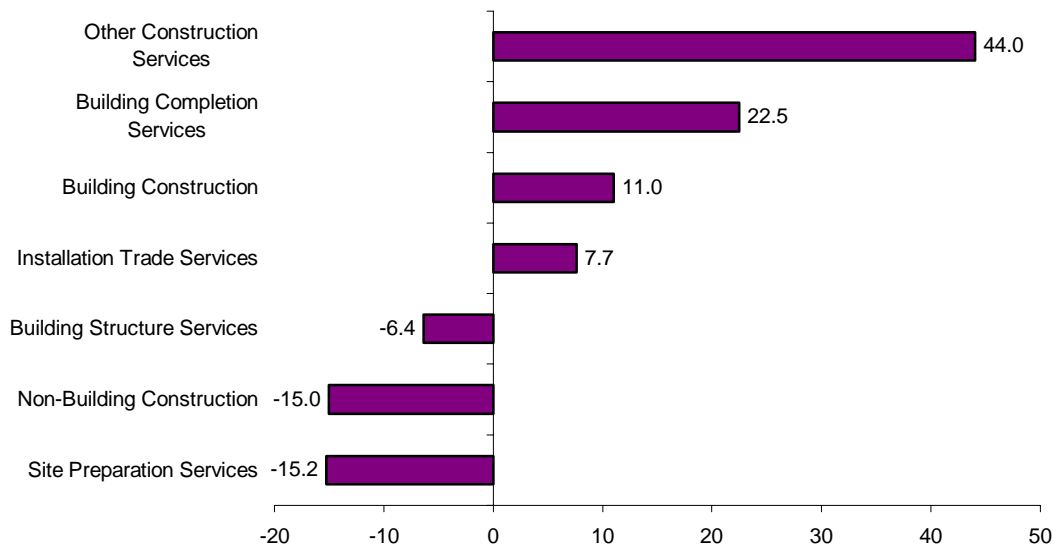
Source: ABS, *Labour Force, Australia*, February 2001

Figure 14: Construction industry new jobs by sector, 5 Years to February 2001 (000)



Source: DEWRSB trending of ABS, *Labour Force Survey data*

Figure 15: Construction industry employment growth (%) by sector, 5 years to February 2001



Source: DEWRSB trending of ABS, *Labour Force Survey data*

It is recommended that the interested parties should keep themselves up-to-date with movements in the job market by accessing this particular site.

JOB OUTLOOK ONLINE AND SKILLSEARCH

Job Outlook online

This site, part of *Australian Job Search*, provides occupational information, including for building and construction occupations, to help jobseekers, career advisers and those in education explore jobs and careers. *Job Outlook* provides labour market and career information for nearly 400 occupations.

Job Outlook includes ABS Labour Force Survey data for age, employment, employment growth to November 2000, unemployment, gender and prospects information. The prospects text in *Job Outlook* online takes account of the latest employment and vacancy trends and developments impacting on future demand and job prospects. The search mechanisms for the *Job Outlook* and *SkillSearch* sites help in finding the right occupation.

FOR INFORMATION ON OCCUPATIONAL TRENDS AND PROSPECTS:

www.jobsearch.gov.au/joboutlook

FOR INFORMATION ON CURRENT VACANCIES BY REGION:

www.jobsearch.gov.au

SkillSearch

SkillSearch is a major enhancement to the *Australian Job Search (AJS)* web site that enables users to access **course and provider information** for around 400 occupations. The information on *SkillSearch* assists jobseekers, students, recruitment agencies and career advisers to explore and access education and training options in their region.

SkillSearch provides information on over 12,500 education and training courses, and around 2,500 higher education and VET training providers. *SkillSearch* also provides information on educational qualifications for each occupation.

Continuing enhancements to *AJS* have created an employment site that gives users the ability to move easily between information on occupations (in *Job Outlook*), courses and training providers (in *SkillSearch*) and current vacancies (in *Find a Job*).

FOR INFORMATION ON COURSES AND PROVIDERS BY REGION:

www.jobsearch.gov.au/skillsearch

Employment publications

Information relating to skill shortages including: recent editions of the monthly Vacancy Report, National and State Skill Shortage Lists and the Job Outlook publication is available on the Department's website at:

www.dewrsb.gov.au/employment/publications/

1 Introduction

The building and construction trades are experiencing difficulties in recruiting and retaining the right skilled people. Although these shortages have eased in response to the downturn in construction in the second half of 2000, this is still a serious problem which requires analysis. This part of the report examines issues relating to the supply of skills to the building and construction industry by analysing relevant data. It looks first at the common underlying factors giving rise to shortages, including those specific to particular occupations and trades.

The building and construction industry experiences particular difficulties in relation to skill and labour supply because of the cyclical nature of the industry, which closely follows the overall level of economic activity. Particular strategies are needed to address this issue.

In developing appropriate industry responses to skill shortages, it is necessary to answer these questions:

- What are the types of skills in short supply, and in what areas are they in short supply?
- What are the underlying causes of the shortages?

With respect to underlying causes, skill shortages in the trades can arise from:

- Not enough people entering trade training;
- A high attrition rate during the training period, meaning that not enough people complete trade training and attain the qualifications necessary for highly skilled or technical work in the trades;
- A high rate of separation from the skilled trades workforce once people are qualified; due to a variety of reasons, such as low demand for skills, declining employment prospects, or better careers and conditions being offered in other industries and sectors.

Alternatively, skill shortages experienced may be an expression of:

- Difficulties in recruiting new entrants with the right level of education, skills or attributes;
- Lack of training in particular segments of the industry because of structural factors, such as out-sourcing or sub-contracting;
- Insufficient effort by the existing trade workforce in upgrading skills once initial qualifications have been attained;
- The failure of training to ensure that the quality and relevance of training is keeping up with the rapidly changing skill needs of the workforce.

Skill shortages may also be experienced because of a combination of the above factors.

The National Centre for Vocational Education Research (NCVER) has prepared most of the material in part of the report, using information supplied by the NCVER, the Australian Bureau of Statistics (ABS) and the Department of Employment, Workplace Relations and Small Business (DEWRSB).

The building and construction trades include:

- Carpentry & Joinery Tradespersons
- Fibrous Plasterers
- Roof Slaters & Tilers
- Bricklayers
- Solid Plasterers
- Wall & Floor Tilers & Stonemasons
- Painters & Decorators
- Signwriters
- Floor Finishers
- Plumbers

Non-trade on site construction occupations include:

- Mobile Construction Plant Operators
- Crane, Hoist or Lift Operator
- Structural Steel Construction Workers
- Insulation & Home Improvements Installers
- Earth Moving Labourers
- Paving & Surfacing Labourers
- Survey Hands
- Construction Assistants
- Concreters

2. Supply of skills to the building and construction trades

The supply of skills to the building and construction trades comes from four major sources:

- The skills of existing trades workforce, including the upgrading of skills of the existing workforce;
- New apprentices entering the building and construction trades;
- Skills training undertaken through non-apprentice training pathways;
- Entry of skilled migrants to the building and construction trades.

The other critical issue with respect to the supply of skills to the building and construction trades concerns the rate of replacement as skilled and qualified labour leave these skilled trades occupations.

Each of these factors is examined below.

2.1 Skills of the existing building and construction trades workforce

Around 48% of the skilled trades workforce in the building and construction trades have post-school qualifications (see Table 1). This is a higher proportion than the average (42%) for the whole Australian workforce.

The information in Table 1 shows the highest qualification attained. Some of those with degrees, diplomas and associated diplomas may also have vocational qualifications.

For the building and construction trades as a whole:

- Only around 2% of employed persons have a diploma or associate diploma (or equivalent) as their highest qualification, a much lower rate than the workforce as a whole (8%).
- Around 44% possess a skilled vocational qualification, well above the workforce average of 14% having a vocational qualification as the highest level attained.
- Less than 1% possesses a degree level or higher qualification, compared with 15% in the workforce as a whole.

To summarise, the proportion of the workforce in the building and construction trades with relevant qualifications (i.e. diploma and other vocational qualifications) is high compared with the workforce as a whole.

About 45% of the total building and construction trade had no formal post-school qualifications (1996), a proportion slightly below for the national workforce as a whole ((57%). A summary of the skill level of the workforce is given in Box 1.

Box 1: The skills of the existing building and construction trades workforce.

- ◆ *48% of the building and construction trades workforce hold a post-school qualification, compared with only 42% of the workforce as a whole.*
- ◆ *The incidence of vocational qualifications in the building and construction trades workforce is very high (44%) compared with the workforce as a whole (14%).*
- ◆ *45% of the building and construction trades workforce have no formal qualifications. This situation means that the workforce may not be able to meet contemporary industry needs for high level technical skills.*

Table 1: The education attainment of persons employed in the building and construction trades, and the total workforce, 1996

Occupational categories	Degree or higher	Diploma	Associate Diploma	Skilled vocational qualification	Basic vocational qualification	Sub Total with qualification	No qualification	Not stated or unknown	Total
4411 Carpentry & Joinery Tradespersons	500	370	1290	43460	790	46420	18650	4280	69350
4412 Fibrous Plasterers	70	60	60	5780	120	6090	7060	1150	14310
4413 Roof Slaters & Tilers	20	20	20	2320	40	2420	2620	380	5420
4414 Bricklayers	60	80	130	10430	180	10880	7180	1390	19440
4415 Solid Plasterers	10	10	(a)	670	20	720	880	140	1740
4416 Wall & Floor Tilers & Stonemasons	130	70	80	4810	100	5190	5100	970	11270
4421 Painters & Decorators	350	240	200	15530	320	16620	12810	2550	31980
4422 Signwriters	90	80	80	2500	120	2870	1910	300	5090
4423 Floor Finishers	60	30	30	1800	60	1990	3660	480	6130
4431 Plumbers	150	190	480	32140	460	33410	8730	1900	44040
7111 Mobile Construction Plant Operators	100	120	180	4260	570	5220	21420	1740	28370
7122 Crane, Hoist or Lift Operator	100	40	40	1150	620	1950	4760	530	7230
7913 Structural Steel Construction Workers	50	40	40	1690	1310	3130	4220	820	8170
7914 Insulation & Home Improvements Installers	110	90	120	2640	190	3150	4730	540	8420
9912 Earth Moving Labourers	30	10	20	370	60	490	1980	160	2640
9913 Paving & Surfacing Labourers	30	10	40	600	60	730	3980	310	5020
9914 Survey Hands	130	40	140	250	60	620	1560	100	2290
9916 Construction and plumbers Assistants *	280	140	200	3190	390	4200	14780	1240	20220
9917 Concreters	80	70	100	2520	160	2940	13090	1140	17180
Total building and construction trades	2340	1710	3250	136100	5640	149040	139140	20120	308300
Percentage of building and construction trades	0.8	0.6	1.1	44.1	1.8	48.3	45.1	6.5	100
Percentage of total Australia workforce	15.5	4.5	3.5	14.2	3.8	41.5	51.3	7.2	100

Sources: NCVET (1998) The Outlook for Training in Australia's Industries, Table A2 and ABS 1996 Census of Population and Housing.

* Includes plumbers' assistants.

(a) Represents figures between 1 and 9 inclusive.

2.2 New Apprenticeship patterns and trends

Australia's national and state/territory governments have reformed the apprenticeship and trainee system by making it more flexible and responsive to employer needs with the aim of ensuring that the highest quality training is provided. The new training arrangements, which cover apprenticeships and traineeships, collectively known as "New Apprenticeships", were introduced on 1 January 1998.

Although New Apprenticeships cover both apprentice and traineeship training, most entry-level skills training in the building and construction trades, through contracts of training with employers, follows the traditional apprenticeship pathway, leading to a Certificate III qualification and typically involving a four year apprenticeship contract.

The NCVER reports that, of the 33,100 contracts of training shown in Table 2, apprenticed trades (at the Certificate III level or higher) account for over 97% of all those in a contract of training in building and construction trade occupations.

Table 2: Building and construction New Apprenticeships, 31 December 2000

	Number of New apprentices	Proportion of total new apprentices (%)	New apprentices as a proportion of skilled trades workforce (%)
4411 Carpentry & Joinery Tradespersons	14150	42.8	14.6
4412 Fibrous Plasterers	1100	3.3	3.6
4413 Roof Slaters & Tilers	870	2.6	8.0
4414 Bricklayers	1800	5.4	7.0
4415 Solid Plasterers	390	1.2	8.6
4416 Wall & Floor Tilers & Stonemasons	1100	3.3	7.2
4421 Painters & Decorators	2690	8.1	6.3
4422 Signwriters	390	1.2	5.9
4423 Floor Finishers	420	1.3	4.8
4431 Plumbers	6910	20.9	12.3
7111 Mobile Construction Plant Operators	2110	6.4	4.4
7122 Crane, Hoist or Lift Operator	(a)	0.0	0.0
7913 Structural Steel Construction Workers	10	0.0	0.1
7914 Insulation & Home Improvements Installers	0	0.0	0.0
9912 Earth Moving Labourers	20	0.1	0.6
9913 Paving & Surfacing Labourers	0	0.0	0.0
9914 Survey Hands	0	0.0	0.0
9916-11 Construction Assistant	1110	3.3	3.1
9917 Concreters	40	0.1	0.2
Total	33100	100.0	7.2

Source: NCVER unpublished apprentice and trainee data, March 2001.

(a) Represents figures between 1 and 9 inclusive.

As can be seen from Table 2, the number of New Apprenticeships as a proportion of the skilled trades workforce varies between major occupations within the building and construction trades. Apprentices make up 14.6% of the total skilled trades workforce in the carpentry and joinery tradespersons occupation, 12.3% of plumbers, 8.6% of solid plasterers and 8% of roof slaters and tilers.

The proportion of new apprentices in the building and construction trades workforce overall is 7.2%. This is lower than the proportion in all skilled trades, where around 11.1% of the skilled workforce is supplied by New Apprenticeships.

The proportion of the total building and construction workforce participating in New Apprenticeships has risen from 6.1% in 1996 to 7.2% in 2000 (see Table 3), with an annual growth rate of 4.3%. This compares favourably with employment growth of 2.5% per annum in building and construction trades over the same period.

Table 3: Building and construction New Apprenticeships compared to skilled trades workforce, 31 December 1996 to 2000

	1996	1997	1998	1999	2000	Annual Growth Rate (%)*
<i>Skilled workforce(a) (000)</i>						
Building and Construction trades	414.7	403.8	440.5	474.0	458.2	2.5
All trades	1 138.0	1 125.0	1 155.8	1 207.0	1 191.0	1.1
All persons	8 383.6	8 514.7	8 651.0	8 892.8	9 067.5	2.0
<i>Number of New apprentices In-training (b) ('000)</i>						
Building and Construction trades	25.3	24.9	25.6	29.9	33.1	6.9
All trades	123.8	123.4	125.6	130.9	131.9	1.6
All persons	164.4	186.5	218.4	261.6	295.6	15.8
<i>New Apprentices as a proportion of skilled trades workforce</i>						
Building and Construction trades	6.1	6.2	5.8	6.3	7.2	4.3
All trades	10.9	11.0	10.9	10.8	11.1	0.5
All persons	2.0	2.2	2.5	2.9	3.3	13.5

* Annual rates of growth are compound growth rates.

(a) Based on ABS November Labour Force Survey.

(b) As at 31 December based on NCVET unpublished apprentice and trainee data, March 2001.

The key issues to consider in relation to the contribution of apprentices are trainees to the supply of skills are whether:

- the number entering contracts of training is sufficient to meet industry needs;
- the number staying in apprenticeships and traineeships to complete their training is adequate.

Apprenticeship training in the trades declined in the early 1990s from the record-high levels of the late 1980s. Since the mid 1990s, there has been a turnaround in this trend, with increasing growth in the past couple of years.

Although the number of apprentice and trainee commencements in the building and construction trades declined from 1995 to 1996, the NCVET reported strong growth from 1997 to 1999, followed by a slight decrease during 2000 (see Table 4).

The overall number of apprentices and trainees in training in the building and construction trades has risen since the mid-1990s with an annual growth rate of 5% from 1995 to 2000 (see Table 5).

The increase in the numbers in training over the period 1995 to 2000 compares favourably with the growth of employment (1.8% per annum) in the building and construction trades. The increase in apprentice and trainee commencements since 1995 will raise the ratio of new apprentices to the total skilled trades workforce.

As shown in Table 6, around 5,000 people completed New Apprenticeships begun in 2000. Taking a crude completion rate, this amounts to a completion rate of around 64% in 1996 (noting that most contracts of training in these trades average four years duration). Analysis undertaken by the NCVET suggests under-reporting of completions by about 20%; on this basis the completion rate shown above is more likely to be over 70% in view of the relatively better rates of completion experienced in building and construction compared with other trades. Recent DETYA¹ research also shows completion rates for apprentices at about 70% overall. This is a reasonably healthy achievement.

Although strong growth in completions was attained between 1995 and 1998, the number of completions fell by around 18% in 1999, and then by a further 5.3% in 2000. (Given the possible unreliability of data on completions, it may be that the figures understate the true position and that the real rate is better than that shown here).

Table 4: Commencements in contracts of training in the building and construction trades, 1995 to 2000

		Number						Annual growth rate* 1995 - 2000 (%)	Growth rate 1999 - 2000 (%)
		1995	1996	1997	1998	1999	2000		
4411	Carpentry & Joinery Tradespersons	3860	3510	3920	4760	5700	4860	4.7	-14.8
4412	Fibrous Plasterers	310	220	280	410	510	490	9.8	-3.3
4413	Roof Slaters & Tilers	230	210	250	370	510	340	8.6	-32.0
4414	Bricklayers	500	440	490	690	940	720	7.4	-23.4
4415	Solid Plasterers	130	90	110	140	150	170	6.0	12.6
4416	Wall & Floor Tilers & Stonemasons	370	310	300	430	450	440	3.2	-3.5
4421	Painters & Decorators	770	640	730	900	1110	1150	8.4	3.5
4422	Signwriters	170	130	140	140	160	150	-2.7	-4.4
4423	Floor Finishers	130	110	120	150	190	190	8.3	1.4
4431	Plumbers	1790	1510	1700	2290	2600	2310	5.2	-11.2
7111	Mobile Construction Plant Operators	50	150	160	120	890	1390	97.7	55.8
7122	Crane, Hoist or Lift Operator	0	0	0	0	0	(a)	-	-
7913	Structural Steel Construction Workers	0	0	0	10	(a)	(a)	-	256.3
7914	Insulation & Home Improvements Installers	0	0	0	0	(a)	0	-	-100.0
9912	Earth Moving Labourers	0	0	10	10	10	20	-	48.1
9913	Paving & Surfacing Labourers	(a)	10	10	(a)	0	0	-100.0	-
9914	Survey Hands	(a)	(a)	(a)	0	0	0	-100.0	-
9916-11	Construction Assistant	30	490	730	960	710	920	93.2	28.6
9917	Concreters	0	0	0	10	110	60	-	-49.1
Total		8340	7830	8960	11380	14040	13210	9.6	-5.9

Source: NCVER unpublished apprentice and trainee data, March 2001.

* Annual rates of growth are compound growth rates.

(a) Represents figures between 1 and 9 inclusive.

Table 5: The number of apprentices and trainees in contracts of training as at 31 December in the building and construction trades, 1995 to 2000

	Number						Annual growth rate* 1995 - 2000 (%)	Growth rate 1999 - 2000 (%)	
	1995	1996	1997	1998	1999	2000			
4411	Carpentry & Joinery Tradespersons	12900	12240	11930	11930	13480	14150	1.9	5.0
4412	Fibrous Plasterers	740	700	720	800	970	1100	8.3	13.4
4413	Roof Slaters & Tilers	570	520	500	610	840	870	8.7	3.6
4414	Bricklayers	1640	1480	1320	1360	1690	1800	1.9	6.5
4415	Solid Plasterers	290	290	310	310	340	390	6.5	14.7
4416	Wall & Floor Tilers & Stonemasons	1010	990	920	960	1030	1100	1.7	6.8
4421	Painters & Decorators	2180	2160	2120	2080	2310	2690	4.3	16.5
4422	Signwriters	460	440	410	390	380	390	-3.0	2.6
4423	Floor Finishers	350	350	350	360	380	420	3.5	10.5
4431	Plumbers	5760	5660	5560	5810	6530	6910	3.7	5.8
7111	Mobile Construction Plant Operators	40	120	170	140	970	2110	122.1	117.5
7122	Crane, Hoist or Lift Operator	0	0	0	0	0	(a)	-	-
7913	Structural Steel Construction Workers	0	0	0	(a)	(a)	10	-	-
7914	Insulation & Home Improvements Installers	0	0	0	0	(a)	0	-	-
9912	Earth Moving Labourers	0	0	10	10	10	20	-	100.0
9913	Paving & Surfacing Labourers	(a)	10	10	(a)	0	0	-100.0	-
9914	Survey Hands	(a)	(a)	(a)	0	0	0	-100.0	-
9916-11	Construction Assistant	20	380	590	850	930	1110	123.3	19.4
9917	Concreters	0	0	0	10	70	40	-	-42.9
Total		25950	25350	24920	25630	29920	33100	5.0	10.6

Source: NCVET unpublished apprentice and trainee data, March 2001.

* Annual rates of growth are compound growth rates.

(a) Represents figures between 1 and 9 inclusive.

Table 6: Completions from contracts of training in the building and construction trades, 1995 to 2000

	Number						Annual growth rate* 1995 - 2000 (%)	Growth rate 1999 - 2000 (%)	
	1995	1996	1997	1998	1999	2000			
4411	Carpentry & Joinery Tradespersons	2130	2790	3000	3120	2530	2470	3.0	-2.4
4412	Fibrous Plasterers	90	140	150	160	110	100	1.2	-9.1
4413	Roof Slaters & Tilers	140	170	150	130	90	120	-3.0	33.3
4414	Bricklayers	240	330	360	290	240	170	-6.7	-29.2
4415	Solid Plasterers	30	60	50	70	50	40	4.6	-20.0
4416	Wall & Floor Tilers & Stonemasons	110	150	190	210	170	140	5.9	-17.6
4421	Painters & Decorators	320	370	460	540	430	330	0.6	-23.3
4422	Signwriters	60	90	110	90	90	80	5.2	-11.1
4423	Floor Finishers	50	50	50	60	60	50	1.7	-16.7
4431	Plumbers	1090	1100	1290	1400	1180	1030	-1.2	-12.7
7111	Mobile Construction Plant Operators	10	10	70	120	40	70	44.8	75.0
7122	Crane, Hoist or Lift Operator	0	0	0	0	0	0	-	-
7913	Structural Steel Construction Workers	0	0	0	0	(a)	(a)	-	-
7914	Insulation & Home Improvements Installers	0	0	0	0	0	0	-	-
9912	Earth Moving Labourers	0	0	0	(a)	(a)	(a)	-	-
9913	Paving & Surfacing Labourers	20	0	10	(a)	(a)	0	-100.0	-
9914	Survey Hands	(a)	(a)	(a)	(a)	0	0	-100.0	-
9916-11	Construction Assistant	0	(a)	180	240	230	330	-	43.5
9917	Concreters	0	0	0	0	(a)	40	-	-
Total		4300	5240	6080	6440	5270	4990	3.0	-5.3

Source: NCVET unpublished apprentice and trainee data, March 2001.

* Annual rates of growth are compound growth rates.

(a) Represents figures between 1 and 9 inclusive.

Looking more specifically at commencements and numbers in training by level of qualification (Table 7), the greatest annual growth rate from 1995 to 2000 was in Certificates I and II (45.6% and 32.6% respectively), much higher than the rates for Certificate III and above (10.1% and 6.1%). Numbers in the Certificate I and II categories are still very small.

Table 7: Building and construction trades by AQF level

	Number			Annual growth rates*	
	1995	1999	2000	1995-2000(%)	1999-2000(%)
Commencements					
Certificate III & higher	7 650	13 200	12 350	10.1	-6.4
Certificate I and II	130	840	860	45.6	1.5
Not known	570	0	0	-100.0	-
Total	8 340	14 040	13 210	9.6	-5.9
Total in training					
Certificate III & higher	23 900	28 780	32 140	6.1	11.7
Certificate I and II	200	800	830	32.6	4.4
Not known	1,850	350	130	-41.5	-63.7
Total	25 950	29 920	33 100	5.0	10.6

Source: NCVER unpublished apprentice and trainee data, March 2001.

* Annual rates of growth are compound growth rates.

A significant issue for the supply of skills to the trades through New Apprenticeships is the age of apprentices and trainees.

The NCVER reports that the number of commencing apprentices and trainees aged 15 to 19 years increased at an annual rate of 5.9% between 1995 and 2000. The number of commencing apprentices and trainees in the 20 to 24 and 25 years and over age groups also grew, but the biggest growth in commencements occurred in the 25 years and over age group (see Table 8). Numbers in this group are still small.

Table 8: The age of new apprentices in the building and construction trades

	Number			Annual growth rates*	
	1995	1999	2000	1995-2000(%)	1999-2000(%)
Commencements					
15 – 19 year olds	6200	9090	8270	5.9	-9.0
20 – 24 year olds	1690	2840	2350	6.9	-17.1
25 years or more	440	2110	2580	42.3	22.2
All ages	8340	14040	13210	9.6	-5.9
Total in training					
15 – 19 year olds	9910	12070	12140	4.1	0.5
20 – 24 year olds	14250	13770	15210	1.3	10.5
25 years or more	1790	4090	5750	26.3	40.8
All ages	25950	29920	33100	5.0	10.6

Source: NCVER unpublished apprentice and trainee data, March 2001.

* Annual rates of growth are compound growth rates.

Demographic projections show that the number of persons in Australia aged 15 - 24 years will not grow in absolute terms over the next 20 years; the relative proportion of young people in the population will fall considerably over the same period.

As a consequence of this demographic shift, the source of new skills for the building and construction trades will have to be shown increasingly from older age groups.

Another relevant issue is the very low level of New Apprenticeships commenced in schools. NCVET data show that, for building and construction trade occupations, the number of apprentices and trainees who commenced their apprenticeship or traineeship while still at school represent an insignificant proportion for each year from 1995 to 2000. In 2000 only 1.5% of commencements were at school, compared with 1.9% for all trades.

This is an area to be considered in any strategy to boost the intake of younger people to New Apprenticeships in the building and construction trades.

A summary of the situation concerning the contribution of apprentices and trainees to the building and construction trades is given in Box 2.

Box 2: The supply of building and construction apprentices and trainees

- ◆ *The number of apprentices and trainees (now called New Apprenticeships) in a contract of training with an employer in the building and construction trades is now around 33,000, having risen at an annual growth rate of 5% since 1995 and by 10.6% during 2000.*
- ◆ *Commencements in New Apprenticeships fell by 5.9% during 2000, following a period of strong growth during 1997 and 1999. This appears sufficient to meet projected employment levels based on recent growth levels and suggests that insufficient recruitment to trades apprenticeships is not the most important cause of skill shortages.*
- ◆ *Apprentice and trainee completions in the building and construction trades grew strongly between 1995 and 1998.*

2.3 Training undertaken through non-apprentice pathways

This section looks at general vocational and education and training (VET) students for building and construction trade occupations in 2000.

It should be noted that, for the apprentice and trainee data presented elsewhere in this report, the ASCO code is based on apprentices' and trainees' declared vocation, that is, the actual job in which they are employed. The data presented in this section are based on occupation codes assigned to courses to indicate the occupation to which the course is most relevant. Students undertaking a VET course may not necessarily gain employment in the occupation assigned to the course.

The data in this section therefore provide a rough estimate of the level of non-apprentice and non-trainee VET activity relevant to the building and construction trade occupations, regardless of whether this training is actually utilised in these occupations.

Indications are that the number of VET course enrolments relating to the building and construction trades was around 62,840 in 2000. Over half (53.6%) of these were at AQF level III or equivalent or higher levels (see Table 9).

This means that non-apprenticeship training is a strong source of skills for the building and construction trades.

The NCVET figures show that on 31 December 2000 there were 33,100 people in New Apprenticeships in the building and construction trades. This compares with 62,840 enrolments in VET courses, which are orientated towards skills for building and construction occupations but do not necessarily, involve a new apprenticeship.

A wide variety of training is offered in these programs, including Certificate III in general construction; Certificate III in carpentry and joinery or bricklaying; trade certificate in plumbing; or an apprenticeship certificate in plumbing and gas fitting. Of the students doing these courses:

- 2.5% were in advanced or high level courses leading to certificate IV level qualifications;
- 51% were in certificate III programs, traditionally done through apprenticeships;
- 11.3% were in certificate I and II level programs;
- 35.2% were undertaking skills training not leading to an award or full qualifications.

In 2000 the most common VET courses undertaken were in general construction, carpentry, plumbing/gasfitting, civil construction, bricklaying and painting and decorating.

This non-apprentice training represents a range of training pathways, from advanced technical courses leading to high level qualifications to opportunities for persons already employed in the industry to upgrade their skills through enrolment in one or more modules.

The importance of non-apprenticeship pathways as a source of skills for building and construction trade occupations is summarised in Box 3.

Box 3: Non-apprentice pathways for skills in building and construction trades

- ◆ *Alternative vocational pathways are an important source of skills for building and construction trade occupations.*
- ◆ *In 2000 there were 29,740 enrolments in vocational education and training programs that were not New Apprenticeships. This compares with 33,000 new apprentices in training at the end of 2000.*
- ◆ *Non-apprenticeship pathways should be given as much priority as new apprenticeship pathways in any overall skill formation policies for the building and construction trades, particularly in view of the fact that new sources of relevant skills will need to come increasingly from older persons in the future.*

Table 9: Training in the building and construction trades: VET course enrolments, 2000

		AQF Certificate IV and Diplomas equivalent	AQF Certificate III and equivalent	AQF Certificates I and II	Other	Non award courses	Total Enrolments	
4411	Carpentry & Joinery Tradespersons	0	(a)	16460	1670	20	160	18320
4412	Fibrous Plasterers	0	0	700	(a)	0	30	730
4413	Roof Slaters & Tilers	0	0	380	0	0	0	380
4414	Bricklayers	0	0	1800	190	600	80	2130
4415	Solid Plasterers	0	0	260	40	0	20	320
4416	Wall & Floor Tilers & Stonemasons	0	0	900	100	0	70	1060
4421	Painters & Decorators	0	40	2350	130	120	180	2800
4422	Signwriters	0	80	340	30	140	50	640
4423	Floor Finishers	0	0	300	10	770	0	1080
4431	Plumbers	60	1390	6330	240	1060	2000	11080
7111	Mobile Construction Plant Operators	0	80	1880	(a)	620	470	3050
7122	Crane, Hoist or Lift Operator	0	0	50	0	340	130	520
7913	Structural Steel Construction Workers	0	0	10	50	1970	1090	3120
7914	Insulation & Home Improvements Installers	0	0	0	290	0	140	430
9912	Earth Moving Labourers	0	0	10	0	0	0	10
9913	Paving & Surfacing Labourers	0	0	70	850	100	10	1020
9914	Survey Hands	0	0	(a)	40	0	0	40
9916-11	Construction Assistant	0	0	190	3430	8910	3540	16060
9917	Concreters	0	0	0	40	20	0	50
Total		60	1590	32030	7110	14130	7970	62840

Source: NCVET unpublished VET data, 2000

(a) Represents figures between 1 and 9 inclusive.

4. Qualified workers not in building and construction occupations

The issue of the extent to which qualified and skilled tradespersons leave their employment in their skilled trade is a critical one. This is because the formation of new skills in the trade must be sufficient:

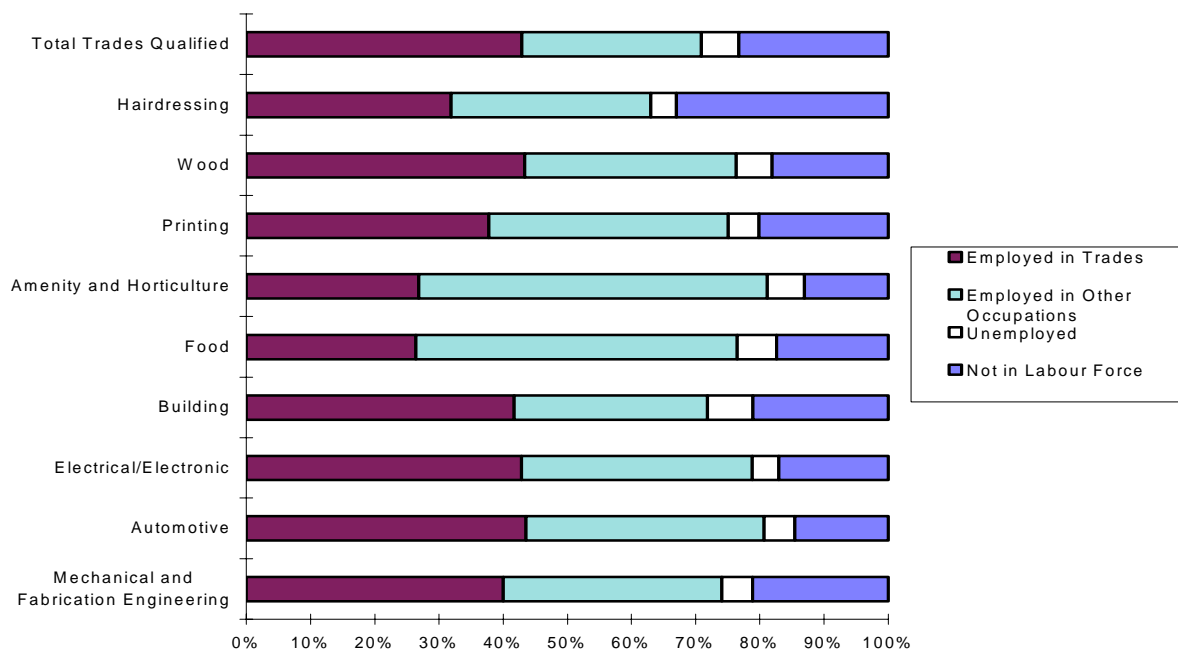
- Not only to meet skills needed to fuel growth in the industries,
- But also to replace those leaving the occupation.

DEWRSB reports that the proportion of construction tradespersons who leave these occupations appears to be below the average for all trade occupations. Nevertheless a considerable proportion of qualified construction tradespersons leave trade employment for non-trade employment. Analysis of 1996 Census data shows for those with construction trade qualifications and aged 15 or over:

- 41% were working in a trade occupation,
- 30% were working in a non-trade occupation,
- 7% were unemployed,
- 21% were not in the labour force (includes those who retire).

The proportion of qualified construction tradespersons who were working in their trade (41%) was higher than the average (38%) for all trades in the Australian workforce (Figure 1).

Figure 1: Trades qualified persons aged 15 and over - proportion in trades employment, employed in other occupations, unemployed and not in the labour force, 1996

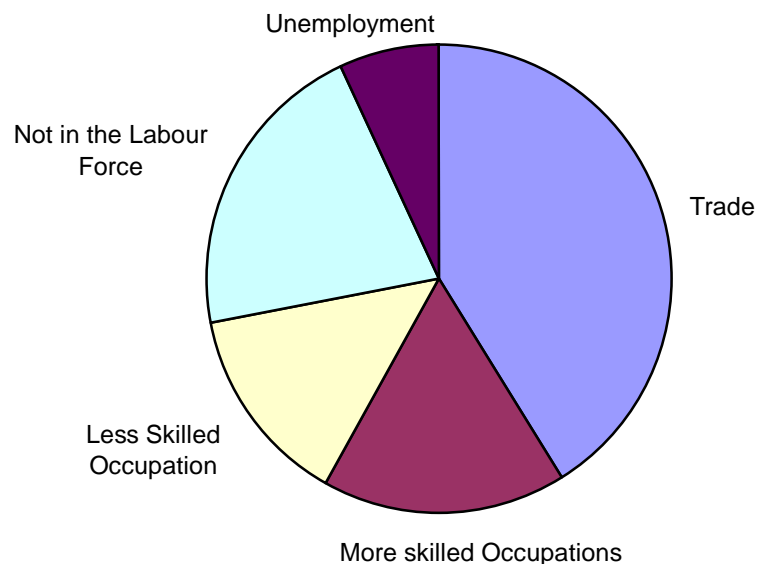


Source: Figure supplied to NCVER by DEWRSB based on data from the 1996 ABS Census of Population and Housing.

Note: 'Other Occupations' includes occupations not adequately described and not stated.

Career progression by construction tradespersons is certainly the reason why many workers leave their occupation. Slightly more than half of the 30 per cent of Construction Tradespersons working in a non-trade occupation were employed in a more highly skilled occupation. The other half (48%) were, however, employed in a less skilled occupation (Figure 2)

Figure 2: Occupational destination of those with construction trade qualifications



Source: ABS, Census of Population and Housing, 1996

Those moving to a more highly skilled occupation moved to a wide range of occupations; with building and construction managers and building associate professionals being a key area of employment.

Those moving to lesser skilled occupations also moved to a wide range of occupations, the most important of the lesser skilled occupations being truck drivers, sales representatives, and sales assistants.

DEWRSB report 32% of construction tradespersons who left their trade did so within five years of employment while 58% of those who left their trade did so within the first 10 years of employment in their trade. This represents a lower pattern of early exodus than for the trades group as a whole.

It is also important to consider the reasons why construction tradespersons leave their trade when looking at what can be done to increase the retention of skills in the construction trades. DEWRSB reports that, according to the ABS publication on Career Paths of Persons with Trade Qualifications, the main reasons why construction tradespersons left the trade were because they were "laid off, or lack of work", or because of "family, personal or ill health". These reasons were given by 28.0% and 22.2% respectively of construction tradespersons (Table 10).

Table 10: Main reason trade qualified persons left the construction trades

Laid off, or lack of work	28.0%
Family, personal, or ill health	22.2%
Wanted a change, or dissatisfied with job	14.9%
Sought better pay, lack of career prospects or promoted	14.5%
More job security or sought better physical working conditions	13.8%
Other	6.7%
Total	100%

Source: Supplied to NCVET by DEWRSB and based on ABS, Career Paths of Persons with Trade Qualifications, Australia, 1993.

The ranking pattern of reasons for leaving the construction trades was slightly different to that for all trades. The proportion of construction tradespersons who cited "laid off, or lack of work" or "family, personal or ill health" was higher than for the total trades group. For the total trades group, 21% cited "laid off, or lack of work" as the main reason for leaving the trade and 19% left for "family, personal or ill health".

A number of factors could account for those who "wanted a change, or (were) dissatisfied with work". These include a desire for less physically demanding work (including not working outside in hot or cold weather).

DEWRSB also reports that there is some evidence to suggest that a significant number of those who left their trade could be enticed back. The ABS survey also showed that, of those who left the construction trades, 47% would consider returning to the construction trades. This is similar to that for the trades group in total where 46% would consider returning to their trades. A return to the construction trades was not, however, unconditional. The extent of ready availability of trade and alternative non-trade employment is the major consideration, cited by 60% of potential returnees.

DEWRSB also notes that replacement from the construction trades in the next few years is likely to be similar to that for other trades in the Australian economy (Table 11).

Table 11: Occupational replacement projections

Trade occupation (ASCO Second Edition)	Replacement to 2004-05
Mechanical Engineering Tradespersons	↓↓↓
Fabrication Engineering Tradespersons	↑
Automotive Tradespersons	↓
Electrotechnology Tradespersons	↓
Structural Construction Tradespersons	↔
Final Finishes Construction Tradespersons	↔
Plumbers	↓↓↓
Food Tradespersons	↑
Skilled Agricultural Workers	↓↓↓
Horticultural Tradespersons	↔
Printing Tradespersons	↔
Wood Tradespersons	↓
Hairdressers	↑↑↑
Textile, Clothing/Related Tradespersons	↔
Miscellaneous Tradespersons	↓
Total Tradespersons	↔
↑↑↑ High	↑ Above average
↔ Average	
↓↓↓ Low	↓ Below average

Source: Replacement projections prepared by the ACER Centre for the Economics of Education and Training, Monash University under contract to DEWRSB.

The implications of the replacement of skills from the construction trades workforce on the overall supply of skills to these trades is summarised below.

- The building and construction trades have been more successful than the average of other trades in retaining qualified persons within the skilled trades workforce. Some 41% of qualified construction tradespersons are working in their trades, compared with only 38% for all trades.
- Of those now not working in a building and construction trade, the majority are working in other areas of the labour market, rather than having left the labour market or becoming unemployed.
- Forecasts in the future are for average occupational replacement rates for structural and final finishes construction tradespersons and very low replacement rates for plumbers.
- There is some potential to reduce the loss of skills from these trades as 47% who have left say they would consider returning with improved pay and career prospects which is similar to the 46% all trades average who say they could be induced to return to their trade.

5. Migration

Migration supplements domestic training for construction trades net migration of construction tradespersons averaged around 700 in 1996-97 and 1997-98, then rose to over 1000 in 1998-99 and fell slightly to 900 in 1999-2000. In 1999-2000, arrivals of 3600 more than offset departures of 2700 (see Tables 12 and 13).

Table 12: Migration of construction tradespersons

Year	Permanent & long-term arrivals	Permanent & long-term departures	Net permanent and long-term			
			Settler	Long-term residents	Long-term visitors	Permanent & Long-term total
1996-97	2214	1501	558	338	-183	713
1997-98	2954	2258	474	430	-208	696
1998-99	3264	2261	910	194	-101	1003
1999-00	3622	2707	925	305	-315	915

Source: Data supplied to NCVET by DEWRSB.

Table 13: Migration of construction tradespersons by occupation 1999-2000

Trade	Permanent & long-term arrivals	Permanent & long-term departures	Net permanent and long-term			
			Settler	Long-term residents	Long-term visitors	Permanent & Long-term total
Carpenters & joiners	1167	861	312	101	-107	306
Fibrous plasterers	50	44	11	1	-4	6
Roof slaters & tilers	67	35	27	1	4	32
Bricklayers	244	195	81	20	-52	49
Solid plasterers	146	103	61	4	-22	43
Wall/floor tilers & stonemasons	130	127	42	0	-39	3
Painters & decorators	572	399	181	77	-85	173
Signwriters	46	33	4	10	-1	13
Floor finishers	37	23	14	2	-2	14
Plumbers	441	288	130	24	-1	153

Source: Data supplied to NCVET by DEWRSB.

6. Overview of skill shortages in the building and construction trades

The evidence presented to date suggests that the combination of commencements in new apprenticeship training and the now very significant set of non-apprenticeship training pathways to the building and construction trades have been sufficient to keep up with overall employment levels in the building and construction trades.

In terms of traditional measures of skill shortage, the building and construction trades do not appear to be in a critical stage of demand, given the factors described below.

- The increases in apprentice and trainee commencements in the building and construction trades will see an improvement with the raising of the ratio of new apprentices to the total skilled trades workforce in Australia's building and construction trades sector.
- An increase in the growth of new apprentice completions over the period 1995 to 2000.

1. Background

In January – February 2001 a survey of employers' views on the skill requirements of the industry was carried out for the Working Group. The survey was conducted by means of a questionnaire to which 211 valid responses were received. A summary of the findings follows.

It is important to note that the Commonwealth Government announced changes to the First Home Owner Grant scheme while the survey was in progress, increasing the level of assistance from \$7,000 to \$14,000. It is thus possible that the expectations of many respondents were based on the situation before the announcement and, had they been able to factor in the likely impact of the change, its possible that their expectations for growth in the demand for work would have been more optimistic. The summary below is most likely a reflection of industry views before the policy change.

Representing nearly 8% of total employment in the Australian economy, the building and construction sector has been characterised by regular fluctuations in the level of activity and hence in the demand for skilled workers. This uncertainty can itself lead to attrition as skilled workers seek more stable employment, and hence increase the training required to maintain an adequate skills supply.

2. Profile of respondents

A total of 211 Building and construction industry respondents from all States and Territories completed the questionnaire (see Table 1). The sample appears to slightly under-represent the industry in New South Wales and over-represent it in Western Australia.

Table 1: Geographical distribution of respondents by state/territory, percentages

State/Territory	%
New South Wales	23
Victoria	19
Queensland	18
South Australia	10
Western Australia	16
Tasmania	4
Northern Territory	2
Australian Capital Territory	3
Unknown	5
TOTAL	100

Respondents were mostly small: nearly half employed four workers or less, another 22% employed only five to nine. Only one respondent had a workforce of over 500 (see Table 2).

Table 2: Size distribution of respondents, percentages

Number of current employees	%
0-4	44
5-9	22
10-19	13
20-49	10
50-59	9
100-499	2
500+	0.5
TOTAL	100

Percentage totals do not necessarily sum to 100 due to rounding.

The largest category of respondents worked in residential construction, mainly as head-contractors. Fewer worked in commercial construction, most of which were head-contractors. Only two respondents worked wholly as civil contractors.

Table 3: Building and construction distribution of respondents by major specialisation

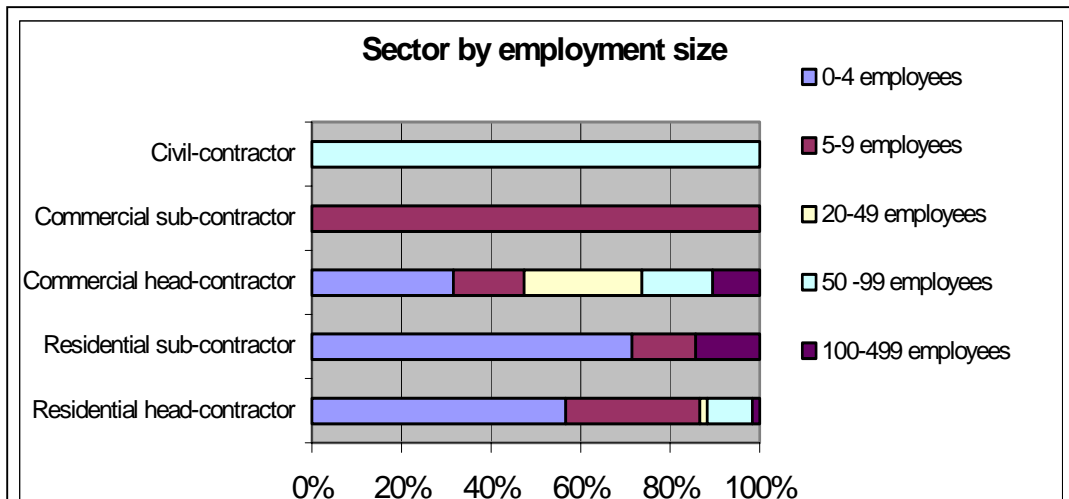
Area of Work	All work - 100%	75% to 98%	Total – 75% or over
	%	%	%
Residential Building - Head Contractor	31	10	41
Residential Building - Sub-contractor	3	2	5
Commercial Building - Head Contractor	11	4	16
Commercial Building - Sub-contractor	1	1	2
Civil Contractor	1	0	1
Total	47	18	65

Percentage totals do not necessarily sum to 100 due to rounding.

47% of the respondents (100), specialised in one area of the industry, (i.e. operated all the time in one of the nominated areas), while 65% of the respondents operated at least three quarters of the time in a single area.

The distribution of employers in terms of employment size was similar to that for all respondents in housing, amongst both head contractors and sub-contractors. Commercial head-contractors were larger than respondents as a whole. The two civil contractors, which operated full time in this area, were both medium size firms with 50-99 employees each (Figure 1).

Figure 1: Building and construction sector by employment size



3. Economic climate and expectations

The survey was conducted in January – February 2001. Although the Commonwealth Government announced more generous provisions under the First Home Owner Grant scheme at this time, expectations for the 12 months following the survey were pessimistic, with 42% of respondents reporting that they expected less work to be available. A further 34% expected no change and only 24% expected an increase in work. It is likely that, if the survey had been conducted a little later, when the industry had time to assess the likely impact of changes to the FHOS, more positive expectations would have been expressed.

Table 4: Expectations of future work levels

Do you see work for your company in the next 12 months	(n = 211)
	%
Being down	42
About the same	34
Increasing	24
No answer	0.5

Percentage totals do not necessarily sum to 100 due to rounding.

It is felt that recruitment difficulties will ease in the immediate future as a result of toughening economic conditions. While half the respondents (51%) did not feel recruitment problems would change, over a third (38%) expected recruitment to be easier. Only a minority of respondents (10%) expected recruitment to become harder.

Table 5: Expectations of recruitment difficulties

Compared to the previous 12 months, do you expect recruitment to be easier or harder or about the same in the next 12 months? (n = 211)	
	%
Easier	38
About the same	51
Harder	10
No answer	1

4. Labour market conditions

Most respondents (72%) experienced recruitment difficulties of some type over the previous year in a range of occupational categories. Just over 40% had found problems hiring bricklayers, 30% hiring carpenters and 29% hiring wall and floor tilers.

Table 6: Recruitment difficulties in last 12 months

Inability or difficulty in recruiting workers in the past 12 months?	(n=211)
Bricklayers	41
Carpenters	30
Wall & Floor Tilers	29
Solid Plasterers	21
Fibrous Plasterers	16
Painters & Decorators	16
Concreters	15
Roof Slaters/Tilers	14
Carpenters & joiners	13
Plumbers	9
Floor Finishers	5
Structural Steel Construction workers	5
Plant Operators	2
Sign Writers	0.5
Other	12
No problems	28

Percentage totals do not sum to 100 due to multiple responses.

Respondents were also asked their expectations for recruitment over the next 2 years. The general view was that recruitment difficulties would ease, although a slight majority (54%) expected difficulties in some areas. Those forecasting skill shortages expected them in the same occupations with which they had reported shortages the previous year. Groups identified as likely to be in short supply included carpenters and joiners, bricklayers, wall and floor tilers and solid plasterers.

Table 7: Anticipated skills shortages

Areas anticipated to have recruitment difficulties	(n+211)
	%
Bricklayers	18
Carpenters	18
Carpenters & Joiners	12
Concreters	8
Fibrous Plasterers	7
Painters & Decorators	8
Solid Plasterers	13
Wall & Floor Tilers	17
Other skill shortages	6
I don't expect to have any recruitment difficulties in any trade	46

Percentage totals do not sum to 100 due to multiple responses.

In addition to these general areas, 32 respondents specified specialist areas in which recruitment difficulties were expected. Skilled roof framers/roof carpenters were specified by 12 respondents. Specialist carpenters made up most of the 16 specialist categories identified, but respondents identifying specialist skills shortages were less than a sixth of all respondents.

Table 8: Anticipated skills shortages – specialist areas

	%
Skilled roof framers/roof carpenters	38
Skilled wall framers	25
Fitout carpenters	22
Skilled carpenters (NFI)	19
Skilled tradespeople (NFI)	16
Joiners	9
Skilled tilers (Wall/floor/Ceramic)	9
Other types of skilled carpenters	6
Foremen	6
Skilled bricklayers	3
Skilled plasterers (solid/setters/fix etc)	3
Workforce experienced in full timber construction	3
Gyprock fixers and flushers	3
Cladding installers	3
Concreters/Concrete block laying	3
Roof plumbers/plumbers NFI	3
None	6

Percentage totals do not sum to 100 due to multiple responses.

5. The vocational education and training system

Awareness of the changes occurring in vocational education and training was variable. Responses were almost evenly divided between the three alternatives.

Table 9: Awareness of changes to the training system

Are you aware of changes to the training system? (Given changes to competency based training and training closer to industry needs)	(n = 211)
	%
Yes	36
Vaguely	32
No	29
No answer	3
Total	100

Nearly a third of respondents believed that changes in the training system would produce a better system, twice as many as those who believed they would make no difference. Nearly half the respondents had no opinion on reforms to the system, suggesting a low level of awareness of reforms in the training system aimed at meeting the industry's training needs more closely.

Table 10: Benefit of changes to training system

Do you see these changes as a better system?	(n = 211)
Perceptions of change	%
Better	31
Not better	14
Don't know	47
No answer	7
Total	100

Percentage totals do not necessarily sum to 100 due to rounding.

While respondents in states where training levies exist support them, those in states where no levy exists are divided as to their desirability. Over two thirds of respondents already affected by levies support them, while those who are not yet affected are evenly divided.

Table 11: Support for training levies

Do you support existing training levies?	%
Yes	69
No	31
TOTAL	100
Do you support the introduction of training levies?	
Yes	49
No	51
TOTAL	100

6. Apprentices and trainees

Nearly 60% of respondents had recent experience of employing apprentices, either directly or through Group training companies. Some 22% only employed apprentices/trainees directly, 21% hired only through Group training companies and 16% used both methods.

59% had not directly employed apprentices or trainees over the past two years and 57% had not hired apprentices or trainees through Group training companies in the past year.

Table 12: Recent employment of apprentices/trainees

Has your company directly employed apprentices and trainees over the past 2 years	(n = 211)
	%
Yes	39
No	59
No answer	1
TOTAL	100

Percentage totals do not necessarily sum to 100 due to rounding.

Respondents to the survey had recruited a total of 156 apprentices and trainees, and nearly 80% of these were in the categories of Carpenter and Carpenter & Joiner. There was no recruitment of Floor Finishers, Roof Slaters/Tilers, Sign Writers, Solid Plasterers, Structural Steel Construction Workers, or Wall & Floor Tilers.

Table 13 Level of direct employment of apprentices last 2 years

How many apprentices did you directly employ in the last 2 years?	Number recruited
Bricklayers	6
Carpenters	89
Carpenters and Joiners	34
Concreters	1
Fibrous Plasterers	2
Painters & Decorators	2
Plant Operators	4
Plumbers	2
Structural Steel Construction Workers	2
Other	14

The reasons given for not employing apprentices and trainees directly were concentrated in a few areas. 42% stated that they used group training companies instead. Uncertainty about future business opportunities was important, with 40% indicating this as an issue, while 31% thought their firm was too small. Two financial issues also surfaced: training was too expensive, and there was insufficient financial support from governments. Some employers also reported that they preferred to employ skilled staff.

Table 14: Why employers have not previously employed apprentices & trainees directly

	Total count n=124
	%
Too expensive	23
Uncertain about future business	40
Insufficient financial support from Government	23
Used Group training companies	42
Firm is too small	31
Prefer to employ skilled staff/tradespersons	20

Percentage totals do not sum to 100 due to multiple responses.

Only 37 respondents answered the survey question about an age preference for apprentices and trainees. This makes drawing conclusions on this issue difficult, though it would seem reasonable to assume that age is not an important issue.

Table 15: Preferred age of apprentices/trainees

Generally do you prefer to employ	(n = 37)
	%
15-19 years	51
20-24 years	16
Mature age people	3
No preference	30
TOTAL	100

Percentage totals do not necessarily sum to 100 due to rounding.

The responses to this question suggest that most employers had reduced the proportion of apprentices/trainees employed directly in favour of employing more via group training arrangements.

Table 16: Change in direct and group training employment of apprentices/trainees

In comparison to direct employment of apprentices versus group scheme apprentices have you increased or decreased?	(n = 211)
	%
Increased	21.8
Decreased	60.2
Remained the same	18.0
TOTAL	100.0

7. Group training schemes

Seventy-nine respondents (42%) used group training companies, 45 exclusively and 34 in conjunction with hiring apprentices and trainees directly.

Of the 79 respondents employing apprentices and trainees through group training companies, the majority employed only a few over the two year period

Table 17: Employment of apprentices through group training companies, last 2 years

How many apprentices/trainees have you employed through a Group Training Company in the past 12 months?	(n = 211) Number employed
None	58
1-4	31
5-9	4
10-19	1
20+	0.5
No answer	5
TOTAL	100

Percentage totals do not necessarily sum to 100 due to rounding.

All respondents who hired trainees through group training companies ranked their reasons for doing so. Over a third of employers in the survey (37%) used group training schemes because of flexibility in terms of hiring new staff. A further 37% also stated that it reduced workers' compensation claims. Both these reasons ranked as the most important for 18 employers each. Also important was the ability to pick and choose apprentices and trainees.

Some responses did not provide a ranking number but merely ticked the reason. All these responses are included in the following table.

Table 18: Reason for hiring apprentices/trainees through group training companies

Why do you hire apprentices/trainees through Group training companies						
	Primary reason	Second	Third	Ticks only	Total count	%
It is a flexible way of hiring new staff	18	5	5	22	78	37
I do not have to worry about too much red tape	9	12	3	10	57	27
GTC Provide better trained apprentices/trainees	4	10	3	6	55	26
I can pick and choose the apprentice/trainee that suits my firm	7	7	2	9	65	31
Its a cheaper way of employing apprentices/trainees	5	8	3	2	45	21
Its an easy way of employing apprentices/trainees	4	3	8	12	55	26
I am unable to commit to 4 years of employment	2	3	10	13	60	28
I minimise my exposure to Workers Compensation claims	18	1	15	9	77	37
No answer	122				122	58
Total					211	100

Percentage totals do not sum to 100 due to multiple responses.

8. Training provision

The vast majority of respondents answering this question (92%) said that TAFE provided most off site training.

Table 19: Majority provider of off site training for apprentices/trainees

Who provides the majority of the off site training for the apprentices/trainees that you currently directly employ?	(n = 83) %
TAFE	92
Industry managed skill centres	5
A combination of both	2
TOTAL	100

Percentage totals do not necessarily sum to 100 due to rounding.

Two-thirds of respondents who answered this question indicated that the training they provided to their apprentices/trainees was all on the job. Just over a third indicated that they provided a combination of on and off the job training.

Table 20: Type of training provided to apprentices and trainees

What type of training do you provide for your apprentices/ trainees?	(n = 83) %
All on the job	65
A combination of both	35
Total	100

9. Satisfaction with industry training

Respondents voiced some dissatisfaction with industry training efforts: over half (59%) thought that industry could provide better training. Another 15% thought otherwise, and 26% did not respond to the question.

Table 21: Industry training efforts

Could the industry provide better training?	(n = 211) %
Yes	59
No	15
No answer	26
Total	100

The degree of employer satisfaction with specified aspects of training is hard to gauge, since only 82 (40%) responded to this question (see Table 22). Of those that did respond, most (54%) agreed or strongly agreed that training had a good balance between theory and practice. There was also fairly strong (though not majority) support for the propositions that training was relevant to industry needs (48%), that was up to date (44%) and that providers were flexible in the way they delivered training (44%). On the question of whether not enough training was done on site, opinion was polarised, with 44% agreeing and 36% disagreeing. Only 36% agreed that the overall quality of training was very high, compared with 43% holding no firm opinion and 21% disagreeing.

Table 22: Attitudes to training issues

Issue	Strongly Agree/ Agree	Neither agree nor disagree	Disagree/ Strongly disagree
Training providers are flexible in the way they deliver training	47%	31%	23%
Not enough training done on site	44%	21%	36%
The training is a good balance between theory and practical needs	54%	24%	22%
The training is up to date with current industry skill needs	44%	27%	30%
The training is relevant to industries needs	48%	22%	30%
The overall quality of the training is very high	36%	43%	21%

10. Future outlook for apprentices and trainees

Responses to the survey indicate the likelihood of a fall in the number of apprentices and trainees being hired over the next year. While almost 40% of respondents had employed apprentices and trainees over the past 2 years, only 17.5% thought that they would employ new apprentices in the next 12 months.

Table 23: Intended recruitment of apprentices and trainees

Does your company intend to directly employ any new apprentices or trainees in the next 12 months?	(n = 211) %
Yes	18
No	79
No answer	4
TOTAL	100

Percentage totals do not necessarily sum to 100 due to rounding.

Thirty-seven respondents said they would employ apprentices or trainees in the next 12 months. They closely followed the pattern of past recruitment, with carpenters, carpenters/joiners and bricklayers predominant. There were no recruitment plans for concreters, fibrous plasterers, floor finishers, roof slaters/tilers, plumbers, sign writers, painters & decorators, structural steel construction workers and wall & floor tilers.

Table 24: Anticipated apprentice/trainee recruitment numbers

Occupation	Number Recruited	Additional Employers Recruiting*
Bricklayers	3	2
Carpenters	28	6
Carpenters and Joiners	4	3
Plant Operators	1	1
Solid Plasterers	1	
Other	1	4

* Respondents not quantifying their recruitment numbers

Nearly 80% of respondents said they did not intend to recruit apprentices or trainees directly over the next 12 months, but 27% proposed to use Group training companies. The main reason given for not employing apprentices and trainees was uncertainty about business opportunities (37%). Other common reasons included insufficient government financial support (24%); excessive cost (23%); declining firm size (23%); and preference to employ skilled staff and tradespersons.

Table 25: Reasons for not intending to employ apprentices/trainees in the near future

	Count	%
Uncertainty about future business	61	37
Will use Group training companies	45	27
Insufficient Government financial support	40	24
Too expensive	38	23
Firm is reducing	38	23
Prefer to employ skilled trades persons	37	22
Too much red tape	27	16
Firm too small	27	16
Not enough young people interested in type of work	22	13
Too difficult to train apprentices/trainees	17	10
No confidence in economy	14	8
Other	8	5
Sufficient already	11	7
Total respondents not recruiting	166	100

11. Attrition among apprentices and trainees

Attrition rates are a useful measure of apprentice and trainee satisfaction, but less than half the respondents answered this question. Respondents felt that levels of apprenticeship and trainee wastage had not changed significantly over the past 5 years.

Table 26: Wastage rate, apprentices and trainees, current and 5 years ago

Comparison of training wastage to 5 years ago	Apprentices (n= 211)	Trainees (n = 211)
	%	%
Greater	15	7
About the same	26	16
Less	6	1
No answer	53	76
Total	100	100

Respondents were more forthcoming on impediments for new entrants in the industry: over 80% completed the question. The most important factor was the uncertainty of the industry, identified by 22% of respondents as the main impediment, and by 39% as an impediment. Low wages and conditions of apprenticeship were also important issues, ranked second as the primary issue, and overall. The third main issue was the structure of the industry, particularly as it affected sub-contractors, and the lack of firm career paths.

Respondents saw two types of impediments to new entrants, one relating to the industry itself and one relating to the regulatory framework. Within the industry the important obstacles were the high level of uncertainty, the large role of sub-contracting, the lack of career paths, low wages and poor conditions. Features of the regulatory framework, which discouraged new entrants, included administrative, financial and legal burdens on employers. These issues were ranked as the third most important of all the barriers identified.

Table 27: Barriers to entry and continuation of new entrants

What do you think are the 3 top barriers to new entrants joining and remaining in the industry?

	Main barrier count	Total count	%
Uncertainty of industry	46	83	39
Low wages, conditions of apprenticeship	24	64	30
Administrative, financial or legal burden to employers	22	52	25
Structure of the industry e.g. sub-contractors, lack of career	21	50	24
Limited number of positions offered by employers	14	28	13
Attitude problems/lack of interest/reliability	17	28	13
TAFE or educational (personal) inadequacies	8	27	13
Negative image of the industry	10	23	11
Government incentives/assistance	4	16	8
General marketing/promotion of industry	4	10	5
Industrial relations/union interference	1	6	3
Costs incurred - tools, transport etc	1	3	2
Don't know	3	3	1
No answer	36	36	17

Percentage totals do not sum to 100 due to multiple responses.

12. Meeting future needs

Employers supported an increase in or changes to government assistance to attract new entrants to the industry before other methods. Other responses included changing entry and training requirements, improving pay and conditions or generally promoting the industry.

Table 28: Initiatives to attract new entrants

What 3 things could the industry do to attract new entrants?			
	Main ways to attract	Total count	%
Increase or change government assistance	38	60	28
Change entry and training requirements	18	41	19
Improve pay and conditions	18	33	16
General marketing/promotion of industry	11	33	16
Maintain better links with school	11	30	14
Promote as a positive career choice	16	29	14
Change structure of industry e.g. sub-contractors	13	27	13
Upturn in industry	13	18	9
Raise standards/promote professionalism/promote trade skills	5	14	7
Help with costs incurred - tools, transport etc	5	12	6
Don't know	9	9	4
No answer	53	53	25

Respondents identified increased government assistance, continuity of work and improvements to training and working conditions, including better pay, as ways to keep apprentices and trainees in the industry. Another suggestion was to “clean up” the industry by means of tougher licensing conditions and banning unscrupulous builders.

Table 29: Initiatives to retain apprentices/trainees

What can our industry do to retain our apprentices/trainees			
	First Suggestion	Total Count	%
Government incentives/assistance	27	35	16.6
Changes in training and/or employment conditions	22	32	15.2
Continuity of work	24	30	14.2
Improve pay	13	20	9.5
General marketing/promotion of industry/promotion as positive	12	16	7.6
Encourage commitment/responsibility/self esteem	9	11	5.2
Mentoring and/or personal assistance	6	10	4.7
Preparation for work in the industry after apprenticeship	4	9	4.3
Raise standards/fight poor work practices/quality workmanship	3	6	2.8
None / nothing	2	2	0.9
Don't know	12	12	5.7
No answer	77	77	36.5

Respondents were also asked to comment on how the industry might improve its image. The most common responses were “promotion of the industry as a positive choice” and “general marketing/promotion”. Another significant issue was tougher requirements licensing and the banning of unscrupulous builders.

Table 30: Improving the industry's image

Options	Main way	Total count	%
General marketing/promotion of industry	16	35	17
Promote industry as a positive choice	21	31	15
Tougher licensing/ban unscrupulous builders	18	24	11
More incentives and assistance from government	12	17	8
Improve pay and conditions	6	14	7
Encourage professionalism - dress code/conduct etc	8	14	7
Target promotion in schools	10	11	5
Eliminate industrial unrest/reduce power of unions	8	11	5
Increase training in business management	4	7	3
Upturn in industry	6	7	3
Other	2	3	1
None / nothing	1	1	0.5
Don't know	13	13	6
No answer	86	86	41

1. Background

Master Builders Australia and the Housing Industry Association held a series of focus groups in all states and territories to examine employer perceptions of the industry's skill requirements. This information has been enriched by data from the industry survey.

The focus groups were an opportunity to canvas the views of contractors drawn from all areas of the industry, representing both the housing and commercial construction, as well as a small group of civil contractors. The information from these sessions reinforces the conclusions of the industry survey.

The participants identified a range of additional impediments to new recruits for the industry, and suggested ideas for marketing the industry to the community.

2. Economic climate and expectations

Because the group focus conferences were conducted soon after the collapse of HIH Insurance, a number of the participants were uncertain as to the effects of the collapse would have in the short to long term. As with the industry survey, 40% of participants felt that the future outlook was somewhat pessimistic, and 20% felt that there would be little change. 40% were hopeful that work would increase as the community got over the initial shock of the GST.

Table 1: Expectations of future work levels

Do you see work for your company in the next 12 months?	
	%
Being down	40
About the same	20
Increasing	40
No answer	0

Participants felt that recruitment difficulties would ease in the immediate future as a result of uncertain economic conditions. Many felt that the HIH crisis would have a severe impact in the medium term while alternative insurance cover was arranged.

Table 2: Expectations of recruitment difficulties

Compared to the previous 12 months, do you expect recruitment to be easier or harder or about the same in the next 12 months?	
	%
Easier	40
About the same	46
Harder	14
Total	100

3. Labour market conditions

Participants were evenly divided with respect to their ability to employ apprentices. Those who indicated they had not employed apprentices over the past two years commented that they were more attracted to employment through Group training companies.

Table 3: Direct employment of apprentices or trainees

Has your company directly employed any apprentices over the past 2 years?	
	%
Yes	55
No	45
Total	100

Of those that indicated who had directly employed apprentices, 60% of these were in carpentry and 40% in plumbing. The balance of the trades showed that little employment was on offer, consistent with the belief of many participants that recruitment to the other trades was not as attractive.

Table 4: Trades in which apprentices were directly recruited

In which trades did you specifically employ apprentices in the past 2 years?	
	%
Carpenters	60
Plumbers	40
Total	100

In the past 3 years most participants had slightly increased or held steady their recruitment of apprentices; only 14% of participants had decreased their intakes. During further discussion, participants predicted that tough economic conditions would limit their ability to maintain apprentice numbers.

Table 5: Change in employment conditions in the past 3 years

In the past 3 years have you increased, maintained or decreased the number of the apprentices you have employed?	
	%
Increase	29
Maintain	57
Decrease	14
Total	100

The reasons for not employing apprentices or trainees directly related to uncertainty about future business opportunities, and the intention to use group training companies.

Table 6: Reasons for not directly employing apprentices

If you were previously unable to directly employ apprentices or trainees, why was this the case?	
	%
Uncertainty about future business opportunities	40
Use of group training companies	45
Other reasons shown below	15
Total	100

Additional comments

- Too expensive
- Lack of loyalty of apprentices to remain as employees following the completion of their training
- Lack of work in regional areas
- Attitude to work practices of apprentices
- Sub-contract system coupled with lack of major employment initiatives from employers and specialisation
- Lack of continuity of work
- Lack of formal training qualifications of employers therefore are unwilling to employ an train an apprentice
- Apprentices find it hard to survive on wages
- No value for money of apprentices, particularly in the first two years
- Inflexibility of the off the job training component
- Poor quality of apprentices
- Poor perception of industry - some employers double their intake because of expected attrition
- Increase in paperwork

Two thirds of respondents indicated that they would not employ apprentices in the next 12 months, primarily due to the predicted economic climate and the uncertainty of future business opportunities in harsher economic conditions.

Table 7: Intended recruitment of apprentices and trainees

Does your company intend to directly employ any new apprentices or trainees in the next 12 months?	
	%
Yes	33
No	67
TOTAL	100

It appears that participants considered opportunities for direct employment to lie with carpentry and plumbing, while other trades were distinctly less attractive.

Table 8: Anticipated apprentice/trainee recruitment by trade

Occupation	Recruitment by trade %
Carpenters	40
Plumbers	60

Uncertainty about future opportunities was an important reason for not intending to employ apprentices, who are considered too expensive and unable to add sufficient value in the early years. In addition, a significant number of participants believed that group training companies offered a solution to their employment expectations.

Table 9: Reasons for not intending to employ apprentices/trainees in the near future

	%
Uncertainty about future business	18
Will use Group training companies	27
Insufficient Government financial support	10
Too expensive	18
My firm is reducing	9
Not enough young people interested in this type of work	9
Too difficult to train apprentices/trainees	9

Participants indicated that there has been a growing trend to hire apprentices through group training arrangements, principally because it is more flexible and reduces administrative costs. Many also indicated that their exposure to workers compensation payments was starting to influence their desire to use group training companies.

A number of the respondents involved in the management of group training programs indicated that the recent increase in workers compensation premiums would cause significant hardship for their operation.

Table 10: Reason for hiring apprentices/trainees through group training companies

Why do you hire apprentices/trainees through Group training companies	%
It is a flexible way of hiring new staff	20
I do not have to worry about too much red tape	17
GTC provide better trained apprentices/trainees	6
I can pick and choose the apprentice/trainee that suits my firm	13
Its a cheaper way of employing apprentices/trainees	10
Its an easy way of employing apprentices/trainees	17
I am unable to commit to 4 years of employment	13
I minimise my exposure to Workers Compensation claims	4

4. The vocational education and training system

Participants' awareness of the changes occurring in vocational education and training varied. Most were vaguely aware of the changes, although further questioning revealed that it was awareness only, not a specific understanding of the changes and their practical effect on future training arrangements.

Table 11: Awareness of changes to the training system

Are you aware of changes to the training system?	
Awareness	%
Yes	66
Vaguely	22
No	12
Total	100

Employers did not appreciate the total impact of the new training arrangements, and most indicated that the "old system" was better. Their comments showed a lack of understanding of the details of the system. Almost 65% of respondents indicated that the present apprenticeship system met the needs of their companies and the industry generally.

Table 12: Benefit of changes to training system

Do you see these changes as a better system?	
Perceptions of change	%
Better	40
Not better	60
Total	100

A significant number of participants felt that a properly run levy was one way of funding both entry-level training and training for the existing workforce. A number commented that their levies should be spent on training for their own firm, not directed to general expenditure across the industry.

Table 13: Support for training levies

Do you support existing training levies?	
	%
Yes	90
No	10
Total	100

Participants indicated a strong preference for young adults over teenagers. Employers believed that teenagers' lifestyles made them unsuitable for working in the industry and that young employees offered little value to the firm, particularly in the first two years of training.

Table 14: Preferred age of apprentices/trainees

Generally do you prefer to employ	%
15-19 years	14
20-24 years	58
Mature age people	14
No preference	14
Total	100

5. Meeting future needs

Although acknowledging that training providers were showing some flexibility in their training delivery, participants were concerned with the overall lack of quality in training. They also felt that the training that was being delivered, particularly in the public sector, was not keeping pace with industry standards. They were also concerned that not enough training was delivered on site.

Table 15: Attitudes to training issues

Issue	Strongly Agree/ Agree	Neither agree nor disagree	Disagree/ Strongly disagree
Training providers are flexible in the way they deliver training	67%	0%	23%
Not enough training done on site	64%	0%	36%
The training is a good balance between theory and practical needs	80%	0%	20%
The training is up to date with current industry skill needs	20%	0%	80%
The training is relevant to industries needs	40%	0%	60%
The overall quality of the training is very high	10%	0%	90%

6. Barriers to entry and continuation of new entrants

The barriers to direct employment and to employment through group training arrangements were similar. Participants noted that workers compensation premiums were rising and that young people were encouraged to continue at school so as to qualify for university entrance. The image of the industry as dirty hard work was also a significant barrier.

Participants believed that the industry cannot afford the high attrition rate of apprentices and that a solution to this problem required better pastoral care, mentoring and support. In addition, apprentices who are unable to drive vehicles have difficulty getting from one building site to another.

7. Attracting new entrants to the industry

The following comments were offered to attract new entrants to the industry:

- Make it more attractive to employ first and second year apprentices
- Recruit industry champions to promote the industry to school students
- Highlight the skills that professional tradespeople have to offer
- Market the industry through model campaigns such as the defence forces example.
- Market the tangible benefits that an apprenticeship provides
- Pre-training is necessary, but in the form of employment-based pre-apprenticeship programs.
- Recruit apprentices to speak to students on the benefits of joining the industry
- Examine the introduction of institution-based training for the construction industry
- Promote the fact that an apprenticeship opens the door to own business opportunities
- Provide more on the job training for apprentices
- Show kids what lifestyle is possible as a tradesperson, self-employed sub-contractor or builder, if they are prepared to work hard.
- Lift the overall profile of the industry to show that there are numerous vocations that young people can select from
- Introduce the industry into primary school (e.g. Bob the Builder, UK)
- Advise students to think carefully about their career path

1. Background

Master Builders Australia and the Housing Industry Association to examine employees' perceptions of the industry's skill requirements held a series of focus groups with apprentices in all states and territories.

The focus groups provided an opportunity to canvas the views of apprentices and participants from schools and industry.

2. Age preference for employment

- Most participants felt that employers required people who knew what they were doing, but young enough to be able to be moulded into the ways of the particular contractor.
- Most participants thought that employers preferred to employ young adults and experienced people.

3. Factors influencing decision to select an apprenticeship

- Family tradition
- Good with hands
- There will always be a construction industry
- A preference for outdoor work
- Offers of an apprenticeship received
- Trade qualification was something that was worth having
- Knew someone in the trade who promoted the industry
- Flexibility
- It was the only job on offer

4. People influencing the decision to select an apprenticeship

- Family
- Self-motivation
- Neighbours
- Employers
- Friends
- School teachers
- Work experience host employer

5. Career advice and its quality

- Overview of industry was nothing like actual experience
- Advice by TAFE and schools was accurate
- Vocational guidance reasonably accurate
- Not a great deal, yet what was provided was convincing
- A school-based apprenticeship scheme was provided
- Industry association came to talk to us at school and this was very useful advice some advice matched reality, not much advice, but we were offered a traineeship at college

6. Factors influencing decision to remain an apprentice

- Enjoy the work
- Family
- Prefer work rather than school
- Working outside in a clean environment
- Trade qualification was something worth having
- It only takes four years to complete the apprenticeship and become qualified
- Once you have your trade you can do a lot of other things

7. Factors that influenced a decision to leave an apprenticeship

- Potential lack of continuous work for the builder
- Too much study required
- Low wages
- Early starts and travelling a lot, especially hard in cold weather
- Some bosses seemed to take the opportunity to abuse their apprentices
- Lack of work and the chop and change of being with so many different builders
- Bad work relations with other tradespeople
- Bosses that treat you as a labourer and provide low-level work
- Mates encouraging you to chase money and telling you that the apprentice award wage was not good enough
- Family pressure to pursue an alternative career

8. Value of school based industry training

- Schools-based apprenticeship course in year 11 and 12 can take six months off an apprenticeship
- The course looked at all aspects of the trade (broader than actual employment)

- Employers said they would like to see more young people involved in school/industry programs
- Those who had completed pre-apprenticeship found it useful
- Provided a good profile of the work
- The program gave them the opportunity to know what was going to happen on site when they started their apprenticeship

9. Attractive features of an apprenticeship

- Being outdoors – using your hands
- Everyday there is something different to do on a variety of sites
- Like the trade
- The work and the skills learned
- Watching a house grow from the ground up
- Sense of satisfaction in being able to participate in the completion of something significant and being accepted as a capable member of a building team
- Good hours

10. Least attractive features of an apprenticeship

- Repetitive jobs
- Cold weather, early starts and muddy conditions
- Low money and hard work
- Sub-contractors giving apprentices low level work
- Verbal and physical mistreatment of apprentices
- Being with so many different employers and their tradespeople
- Not being taught on site

11. Improvements to the current apprenticeship systems

- An allowance to pay you to study at TAFE at night and therefore not be off the job
- On site assessments instead of apprentice going to TAFE
- Building actual houses and being assessed by industry associations rather than attending TAFE
- Develop mechanisms at TAFE to ensure they are up to date with what the apprentices are doing on site
- Ensure equipment used at TAFE is similar to what is used on site
- Provision of rental and living subsidies for apprentices travelling to urban centres

- Under the current system all apprentices receive the same rate of pay, and any exceptionally good apprentices are not rewarded for their effort; perhaps there could be incentives for excellence.
- More employer incentives over the life of an apprenticeship

12. Match of current vocations and training to industry's needs

- Construction carpentry apprenticeship at TAFE does not match requirements of formwork carpentry; would be better if there was just a full formwork course rather than touching on other areas in the building and construction industry.
- Everything undertaken at TAFE was done on the job and therefore training is relevant to industry needs
- Apprenticeships are good and realistic, yet TAFE and their teachers are out of date
- Training was good, but I learnt more on site than in the classroom

13. Effect of sub-contracting system on trades

- Sub-contracting system has been in place for many years and is unlikely to change
- Although sub-contract systems provide an area of specialisation, the participants thought that all apprentices should complete the full trade
- Limited scope of work: apprentices should be able to choose the trade to specialise in
- Sub-contracting specialisation puts more pressure on sub-contractors because there is limited access to sick leave
- It is rare to find a multi-skilled person in the industry.

14. Satisfaction factors of on site training

- Each skill is new, and co-workers encourage a trainee's development
- The high level of professional work learnt on the job
- Learning everything, from quoting to organising work
- The end product provides a lot of satisfaction
- Problem solving aspect of training is interesting
- Learning all the little rules and tricks of the trade
- The high level professionalism of co-workers

15. Dissatisfaction factors of on site training

- Some people are not willing to teach
- Low level of jobs, such as labouring and concreting which do not enhance a trainee's skills

- Working alongside unskilled tradespeople
- Jobs that drag on all day
- At times it is too busy for someone to actually stop and explain certain things

16. Satisfaction factors of off site training

- Producing small but finished products
- Any opportunity to perform tasks outdoors
- Basic training at the skills centre and building life-size components
- Building real things at the skills centre
- All the theory that you learn is relevant
- Communicating and working with other apprentices
- The level of commitment of the staff

17. Dissatisfaction factors of off site training

- Being in a classroom environment
- Most participants thought TAFE training could be significantly improved
- The distance to TAFE and the associated travelling costs

18. Value of apprentice to employer on commencement

- Those who had completed pre-apprenticeship training were considered immediately useful
- Those without pre-vocational training believed that it took about 1 year to know what was going on
- Employers emphasised to apprentices that they were expensive
- There was a consensus that most employers valued their apprentices. While apprentices may not be able to contribute significantly to production, they needed time to develop, and it was work worth persevering with.

19. Barriers to entering the industry

- Not enough people willing to take apprentices on
- Expense factor (very costly)
- Third and fourth year apprentices cost almost as much as a qualified tradesperson and therefore employers prefer experienced tradespersons
- Finding affordable accommodation when away from home
- Perception that young people are lazy and did not have a strong commitment to the industry and lacked a work ethic and positive attitudes.

- The industry is not considered prestigious
- Lack of productive on site knowledge and skill
- Being able to make the change from school life to hard physical work
- The industry is up and down all the time

20. Attracting new entrants to the industry

- Financial incentives
- Greater recognition that the host employer is training apprentices for the industry on a whole
- Personal support to help apprentices continue their training
- Focusing on the positives of having a trade
- More advertising and pre-employment training

21. Improving the image of the industry

- Better safety
- Present a more professional image
- Industry associations' name is a good image to sell the industry
- School focus should be on developing both trade and business skills
- Show career pathways in schools: message is that trade leads to builder leads to business management
- Provide more security
- Providing better information on the prospects of where the job can take you

22. Key message to potential entrants

- Job satisfaction and feeling of pride that can be achieved
- Tell the truth: it is hard, yet worth it and a lot of fun
- There will always be a demand for qualified builders, and there are opportunities worth pursuing for the long term
- Great work if you like a challenge and hard work

23. Retaining apprentices in the industry

- Show them that it can pay off
- Give them more support, including accommodation assistance
- Look to the country for good apprentices
- Give useful career advice and counselling should be provided to apprentices to ensure they are retained within the industry