DEVELOP RESIDENTIAL BUILDING INDUSTRY KNOWLEDGE
CERTIFICATE II IN BUILDING AND CONSTRUCTION
(PATHWAY – PARAPROFESSIONAL)
30009
LEARNER’S GUIDE
BUILDING AND CONSTRUCTION
Develop residential building industry knowledge

30009

Learner's guide
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Develop residential building industry knowledge
Welcome

This guide takes you through the process of learning how to apply relevant industry knowledge to the services you could provide to the residential building industry as an employee or future self-employed contractor.

Areas of explanation include:

• an overview of the industry
• careers and occupations
• career development
• industry terminology and common building terms
• legislation, regulations and licensing
• basic construction principles
• ethics and moral obligations.

Qualification overview

This unit of competency, 30009 *Develop residential building industry knowledge*, forms part of Certificate II in Building and Construction (Pathway – Paraprofessional) and is aimed at those people who are considering a paraprofessional career in the residential building industry (as opposed to the trade sector).

The course consists of 12 units of study and a period of work placement. These two components, study and work, will provide you with an introductory background to the paraprofessional side of the residential building industry.

To progress further in the industry from this introductory level, you will then need to specialise in a particular field of study such as building, estimating, scheduling, drafting, building design. Courses for these careers usually commence at Certificate IV level and progress through to diploma or even advanced diploma levels at a registered training provider who delivers these programs.

Some areas of study such as architecture, interior design and construction management can then be studied further at degree level at a university.
Unit overview

This unit of competency specifies the outcomes required to understand the importance and basic operation of the residential building industry and to develop employability skills relevant to an entry level employee for the industry.

Competence in this unit will be demonstrated by the compilation of an industry information resource file and an essay or paper on a selected topic relevant to the unit’s content.

Unit summary

Some basic information for this unit of competency is provided below. You can find the full unit details in Annex A at the back of this guide.

<table>
<thead>
<tr>
<th>Unit title</th>
<th>Develop residential building industry knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Descriptor</td>
<td>This unit of competency specifies the outcomes required to understand the importance and the basic operation of the residential building industry.</td>
</tr>
<tr>
<td>Employability skills</td>
<td>The following employability skills are an integral part of the delivery of this unit. They include: communication; teamwork; problem solving; initiative and enterprise; planning and organising; self-management; learning; and technology.</td>
</tr>
<tr>
<td>Pre/Co-requisite units</td>
<td>Carry out basic measurements and calculations for residential buildings.</td>
</tr>
<tr>
<td>Application</td>
<td>This unit supports the attainment of basic features and principles underpinning the role of non-trade workers in the residential building industry.</td>
</tr>
</tbody>
</table>

Element 1 Understand the impact of the residential building industry

1.1 Identify the size and nature of the construction industry and particularly the residential building sector, and its importance to the economy of the nation

1.2 Identify drivers of residential building activity

1.3 Identify career opportunities within the residential building industry and the conditions that apply to those occupations

1.4 Identify and use sources to research information relevant to the residential building industry
<table>
<thead>
<tr>
<th>Element 2 Develop knowledge of building terms</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1 Become familiar with <em>common terminology</em> used within the construction industry and particularly the residential building sector</td>
</tr>
<tr>
<td>2.2 Carry out research using printed and electronic media and document findings</td>
</tr>
<tr>
<td>2.3 Correctly use common building terms in conversations and in relevant written notes with colleagues</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Element 3 Identify key documents in residential building</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1 Identify main <em>documents associated with construction</em> of residential building</td>
</tr>
<tr>
<td>3.2 Identify the main forms of legislation, regulation and licensing in the residential building industry and sources of the documentation</td>
</tr>
<tr>
<td>3.3 Identify ethical expectations consistent with well respected enterprises in the industry</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Element 4 Develop knowledge of basic construction principles</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1 Demonstrate an understanding of <em>basic scientific principles relevant to physical construction</em> of residential buildings</td>
</tr>
<tr>
<td>4.2 Develop an understanding of how construction techniques are used to address standard problems</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Element 5 Use residential building industry knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1 Identify and use a range of opportunities to update general knowledge of the residential building industry</td>
</tr>
<tr>
<td>5.2 Monitor current issues of concern to the residential building industry</td>
</tr>
<tr>
<td>5.3 Share updated knowledge with colleagues and customers and incorporate this knowledge in day to day activities</td>
</tr>
<tr>
<td>5.4 Conduct day-to-day activities in accordance with legal obligations and established industry ethical standards</td>
</tr>
</tbody>
</table>
Skills recognition and recognition of prior learning (RPL)

You are encouraged to discuss with your lecturer any previous courses or work experience in which you have participated so that it can be recognised. Evidence of the above must be provided.

Resources

Required

Your lecturer will provide you with:

- examples of residential planning codes.

You will need to provide:

- a USB thumb drive
- an A4 note pad
- an A4 file for notes, handouts and printed documents.

Recommended

The resources listed below provides additional information and plan-reading practice. If your lecturer wants you to access this resource, or any other, they will make them available to you.

<table>
<thead>
<tr>
<th>Information area</th>
<th>Resource</th>
<th>Publisher</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building terminology</td>
<td>HB 50–2004, <em>Glossary of Building Terms</em></td>
<td>National Committee on Rationalised Building (NCRB) and Standards Australia (SA)</td>
</tr>
<tr>
<td>Planning</td>
<td>Residential Design Codes of Western Australia (or other equivalent state codes)</td>
<td>WA Planning Commission</td>
</tr>
<tr>
<td></td>
<td><a href="http://www.planning.wa.gov.au/publications">www.planning.wa.gov.au/publications</a></td>
<td></td>
</tr>
<tr>
<td>Information area</td>
<td>Resource</td>
<td>Publisher</td>
</tr>
<tr>
<td>--------------------------</td>
<td>---------------------------------------------------------------------------</td>
<td>--------------------------------------------</td>
</tr>
<tr>
<td>Employment and recruitment</td>
<td>SEEK</td>
<td>Seek Australia</td>
</tr>
<tr>
<td></td>
<td><a href="http://www.seek.com.au">www.seek.com.au</a></td>
<td></td>
</tr>
<tr>
<td>Wages and salaries</td>
<td>Labour relations – Pay rates and award summaries (or other equivalent state sites)</td>
<td>Department of Commerce</td>
</tr>
<tr>
<td></td>
<td><a href="http://www.commerce.wa.gov.au/LabourRelations">www.commerce.wa.gov.au/LabourRelations</a></td>
<td></td>
</tr>
</tbody>
</table>

**Legislation**

The following is a list of legislation that can apply to buildings in the construction and residential building industries. These documents may be referred to during the various topics within this unit.

- *Building Act 2011* (WA)
- Building Regulations 2012 (WA)
- *Health Act 1911* (WA) or other equivalent state Acts
- Health Regulations 1992 (WA) or other equivalent state Regulations
- *Occupational Safety and Health Act 1984* (for WA) or other equivalent state Acts
- Occupational Safety and Health Regulations 1996 (for WA) or other equivalent state Regulations
- *Safe Design of Buildings and Structures 2008* (code of practice)
Websites

The following is a list of websites that can provide further information applicable to the construction and residential building industries.

- Australian Building Codes Board (ABCB) <www.abcb.gov.au>
- Australian Institute of Building (AIB) <www.aib.org.au>
- Building Designers Australia (BDA) <www.bdaa.com.au>
- Department of Education, Employment and Workplace Relations <www.deewr.gov.au>
- Department of Training and Workforce Development <www.dtwd.wa.gov.au>
- Housing Industry Association (HIA) <www.hia.com.au>
- Master Builders Australia (MBA) <www.masterbuilders.com.au>
- SAI Global <www.saiglobal.com>

Common abbreviations

Throughout this guide you will come across some abbreviations. Below is a list of the most commonly used ones.

ABCB  Australian Building Codes Board
AS  Australian Standards®
BCA  Building Code of Australia
BDA  Building Designers Australia
HIA  Housing Industry Association
ISO  International Organization
MBA  Master Builders Association
NCRB  National Committee on Rationalised Building
NZS  New Zealand Standard
SA  Standards Australia
Self-checklist

As you work through this guide you should return to this checklist and record your progress. Where you understand something and think that you can perform it ‘easily’, congratulations. Where your response is ‘with help’, revise the material in that section and/or discuss it with your lecturer or other learners in your group.

<table>
<thead>
<tr>
<th>30009 Develop residential building industry knowledge</th>
<th>I understand</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Element 1 Understand the impact of the residential building industry</strong></td>
<td>Easily</td>
</tr>
<tr>
<td>1.1 Identify the size and nature of the construction industry and particularly the residential building sector, and its importance to the economy of the nation</td>
<td></td>
</tr>
<tr>
<td>1.2 Identify drivers of residential building activity</td>
<td></td>
</tr>
<tr>
<td>1.3 Identify career opportunities within the residential building industry and the conditions that apply to those occupations</td>
<td></td>
</tr>
<tr>
<td>1.4 Identify and use sources to research information relevant to the residential building industry</td>
<td></td>
</tr>
<tr>
<td><strong>Element 2 Develop knowledge of building terms</strong></td>
<td>Easily</td>
</tr>
<tr>
<td>2.1 Become familiar with common terminology used within the construction industry and particularly the residential building sector</td>
<td></td>
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<tr>
<td>2.2 Carry out research using printed and electronic media and document findings</td>
<td></td>
</tr>
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<td>Easily</td>
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<tr>
<td>3.3 Identify ethical expectations consistent with well respected enterprises in the industry</td>
<td></td>
</tr>
</tbody>
</table>
Element 4 Develop knowledge of basic construction principles

| 4.1 | Demonstrate an understanding of *basic scientific principles relevant to physical construction* of residential buildings |
| 4.2 | Develop an understanding of how construction techniques are used to address standard problems |

Element 5 Use residential building industry knowledge

| 5.1 | Identify and use a range of opportunities to update general knowledge of the residential building industry |
| 5.2 | Monitor current issues of concern to the residential building industry |
| 5.3 | Share updated knowledge with colleagues and customers and incorporate this knowledge in day to day activities |
| 5.4 | Conduct day-to-day activities in accordance with legal obligations and established industry ethical standards |
# About the icons

Note that not all icons may appear in this guide.

<table>
<thead>
<tr>
<th>Icon</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Performance criteria" /></td>
<td>This icon indicates the performance criteria covered in a section. The performance criteria contribute to the elements of competency that you must demonstrate in your assessment.</td>
</tr>
<tr>
<td><img src="image" alt="Activity" /></td>
<td>This icon indicates that there is an activity for you to do.</td>
</tr>
<tr>
<td><img src="image" alt="Computer-based activity" /></td>
<td>This icon indicates that there is an activity for you to do on the computer.</td>
</tr>
<tr>
<td><img src="image" alt="Discussion" /></td>
<td>This icon indicates that there will be a discussion, which could be with a partner, a group or the whole class.</td>
</tr>
<tr>
<td><img src="image" alt="Research" /></td>
<td>This icon indicates that you are to do a research activity using the internet, texts, journals or other relevant sources to find out about something.</td>
</tr>
<tr>
<td><img src="image" alt="Case study" /></td>
<td>This icon indicates that there is a case study or scenario to read.</td>
</tr>
<tr>
<td><img src="image" alt="Think" /></td>
<td>This icon indicates that you should stop and think for a moment about the point being made or the question being asked.</td>
</tr>
<tr>
<td><img src="image" alt="Assessment task" /></td>
<td>This icon indicates that an activity or task is part of your assessment.</td>
</tr>
</tbody>
</table>
Section 1 – Overview of the construction industry

Introduction

The construction industry in general is a major employer of people throughout Australia. As an example, some 130 000 people are currently employed in the industry in Western Australia (source: Construction Training Fund).

Performance criterion

1.1 Identify the size and nature of the construction industry and particularly the residential building sector, and its importance to the economy of the nation

Western Australia, like the other principal mining state of Queensland, has been undergoing a major mining boom, which, over the next few years, will have a big effect on the employment opportunities available to young people entering the construction industry for the first time. These employment opportunities have a ’trickle down’ effect to other sectors of the workforce, such as product suppliers and manufacturers of building products, service industries, residential builders, drafters and other paraprofessional staff and so on.

This section will look at the various factors that affect this employment cycle and help you to consider how to establish a career for life within the residential building sector.
Activity 1.1 Your career plans

Having had a brief introduction to this unit’s content, answer the following questions.

1. Do you have any family connection to the construction industry and in what context?

2. Have you considered a future career path or field of study once you have completed your schooling?

3. Do you know the name of the course(s) of study you might need to pursue when you leave school?

4. Where do you see yourself working in five years’ time and ten years’ time?

The construction industry

To gain a better understanding of the size and nature of the construction industry, we need to consider the main factors that affect it. These factors can be listed as:

• the number of persons employed in the industry
• the amount of money involved
• the various sectors of the construction industry
• the types of occupations covered by the industry.

To inform government and other stakeholders on these factors, data is collected from a wide range of sources. The Bureau of Statistics, Commonwealth and state government departments and major industry associations are just some examples of the organisations involved in this information-gathering process.

From this data, trends and predictions can be forecast with some accuracy, notwithstanding that Australia’s economy is affected by world events. This was particularly illustrated by the global financial crisis in the period 2008–2009. The good news is that Australia has mostly weathered this global financial storm with the help of the mining industry. The construction industry, although subdued during that period, still has a bright future in the years ahead.
Activity 1.2 Australian jobs


Using the information in that document, complete the table below with guidance from your lecturer.

<table>
<thead>
<tr>
<th>Employment numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Economic value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Industry sectors</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Types of occupations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

As can be seen from the data you found, the prediction for national growth in the construction industry is around 15% for the years ahead. This presents more opportunities for young people to join the industry as older members of the construction sector start to retire. Paraprofessional occupations will likewise require employees, as the industry comes out of any cyclical downturns it may experience.

The housing sector of the industry has also been affected by the downturn in recent years but it too is predicted to emerge from this flat period of growth with a surge of activity.

The industry goes in cycles and, as Australia’s population grows, the economy grows in tandem. Housing people will become a government priority; and people will be needed to design and draw up these projects, build them, manage their construction processes, supply products and materials for them, and so on.
Develop residential building industry knowledge
Section 2 – Residential building

Introduction

The construction industry generally, and the residential building sector specifically, is one of the larger employment areas contributing to the Australian economy. Billions of dollars are spent annually on projects across the country, creating jobs for a very large part of the Australian workforce.

The effect this has on how governments at all levels plan for the future cannot be underestimated as it can influence government decisions on such issues as interest rates, the provision of land, transport systems, the provision and location of schools, hospitals and so on, to the point where planning has to be thought out many years in advance.

Your future is affected by these decisions. By becoming part of the industry, you can contribute to the outcomes which enhance our future economy. This section will cover some of the economic issues that affect residential building activity in Australia.

Performance criteria

1.1 Identify the size and nature of the construction industry and particularly the residential building sector, and its importance to the economy of the nation

1.2 Identify drivers of residential building activity

Economic considerations

There are a number of factors to consider when looking at the impact the residential building sector has on the economy. These factors can be broadly discussed in the following categories.
Contribution (to the economy) as a component of total measures

The residential housing sector forms a significant part of overall employment in the construction industry. The industry overall accounts for about 10% of the national job market in Australia and is the third largest employment sector, with over one million workers in total. The residential housing sector contributes about 600 000 workers to that total.

Effects of fluctuations

The effect of fluctuations in the market place cannot be underestimated. The ‘boom and bust' cycle of the economy always poses a problem for most industries and the housing industry is no exception.

Major changes in employment opportunities will often see workers leave the industry and they may not come back when the situation improves. Three factors which have an influence on this issue are as follows.

Supply and demand

The more people who want a product, the more likely it is that the price of that product will be higher. This is certainly the case when building activity is at its peak, when building materials, products and even tradespeople will often be in short supply during a boom period. Construction times are also affected by the lack of a continuous supply of resources. Generally speaking, costs increase during a building period of high demand.

Demographic

This can be defined as the study of characteristics of a human population, or part of it; especially its size, growth, density, distribution, as well as statistics regarding birth, marriage, disease, and death.

As Australia’s population increases, there is likely to be a change in the way housing needs are addressed. Smaller homes on a single level; increases in housing density; smaller land blocks; and an increase in the need for retirement villages to address the needs of older citizens, are just some of the demographic implications for the population of Australia. The need for housing to address the increasing demands from immigration and shifts in population within the country will also have a big impact on the economy.
Interest rates

Competing interests of lending institutions versus the difficulties for people to deal with changes in interest rates is a constant problem for any government. Usually, any increase in rates sees a corresponding downturn in the demand for housing, as people are reluctant to commit to the large debt of a mortgage when interest rates are high.

Percentage of individual wealth tied to built assets

For many people, the largest single item they ever purchase is their home. It can also be the single most demanding of investments as most homes are purchased with the assistance of a mortgage from a lending institution.

Home loans, therefore, can consume a large part of a person’s income. It is said that this ratio of income to mortgage repayments is up around 50% or more in some cases. This can lead to financial difficulties for some people; hence the financial sector promotes the importance of lending responsibility and borrowing within one’s means, even though the Australian economy is in a reasonable state during a difficult world financial crisis.

Even Australian states with a resources boom can suffer from a situation where the benefits of the boom do not necessarily advantage to most of its citizens.

Activity 2.1 Thinking about the future

Have you considered where you are going to live when you eventually leave your family home?
What type of home will you move into?
How are you going to fund your first home purchase?
Discuss these issues with your class group and make some notes here.
Influences on housing activity

There are a number of influences or ‘drivers’ that have an impact on the activity in the housing sector – some positive, some negative – all of which affect the nation’s economy. These drivers can be complex, and it’s not always easy to come up with solutions or remedies to the issues.

In the following activity, you’re going to examine some of these drivers and consider whether they are considered an encouraging or inhibiting factor to future progress. You can then suggest solutions or remedies. The *Australian Jobs* booklet which you sourced in Section 1 is a useful resource for this discussion.

**Activity 2.2 Drivers of activity**

Discuss with your other learners and your lecturer the following drivers of housing activity in the state. Identify any positive and/or negative affects that these may have and suggest a solution or remedy to the issue, then complete the table below.

<table>
<thead>
<tr>
<th>Drivers of residential activity</th>
<th>Positive and/or negative influence on activity</th>
<th>Solution or remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest rates</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percentage of individual wealth tied to built assets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Economic activity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Land supply</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Affordability</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Migration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Government policy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Section 3 – Careers and occupations

Introduction

Careers and occupations in the residential building industry can be broadly broken down into four categories:

1. Unskilled or semi-skilled labourers (eg brickies’ labourers and concrete labourers).
2. Qualified and/or certified tradespeople (eg bricklayers, plumbers, electricians, painters).
3. Paraprofessionals (eg drafters, estimators, schedulers).
4. Professionals (eg architects, building designers, builders, building surveyors, quantity surveyors, project managers).

The terminology and definitions of these positions is not always consistent across the industry which may lead to confusion when describing positions in the workforce (in job advertisements for example).

Qualifications at a higher level than a trade certificate are generally required when pursuing careers in the paraprofessional or professional fields.

This section will explore some of these positions with a view to explaining how you might consider your own career options in the paraprofessional or professional fields related to the residential building industry.

Performance criterion

1.3 Identify career opportunities within the residential building industry and the conditions that apply to those occupations

Every week in newspapers and on websites dedicated to careers and employment, many jobs are advertised for the residential building industry. The descriptions used by employers can vary from state to state, as can the roles the employers expect a prospective employee to undertake.

Salaries can vary widely too, the requirement for certain qualifications is not always consistent and the level of experience is determined by the project work undertaken by the advertising company. This can make it very confusing for someone just starting out on their career path! Let’s look at some of these sources.
Here are some websites that the building industry uses to advertise positions. You’re going to use some of these to do research.

- <www.hays.com.au>
- <www.seek.com.au>
- <www.commerce.wa.gov.au/LabourRelations>

Activity 3.1 Job advertisement examples

With guidance from your lecturer, use the internet and newspapers to find examples of job advertisements for the following jobs. Make some notes about the jobs you find.

<table>
<thead>
<tr>
<th>Job title</th>
<th>Brief job description, salary, requirements etc</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAD drafter</td>
<td></td>
</tr>
<tr>
<td>Estimator</td>
<td></td>
</tr>
<tr>
<td>Scheduler</td>
<td></td>
</tr>
<tr>
<td>Architect</td>
<td></td>
</tr>
<tr>
<td>Builder</td>
<td></td>
</tr>
<tr>
<td>Project manager</td>
<td></td>
</tr>
<tr>
<td>Site supervisor/manager</td>
<td></td>
</tr>
</tbody>
</table>
Now that you have identified some of the paraprofessional and professional roles in the industry, continue your search through the websites or newspapers to complete the next activity which focuses on the qualifications you would need for some of these jobs. You may find the following websites useful resources for this activity.

- Australian Institute of Building <www.aib.org.au>
- Building Designers Australia (BDA) <www.bdaa.com.au>
- Department of Training and Workforce Development (in WA) <www.dtwd.wa.gov.au>

### Activity 3.2 Qualifications required

What qualifications do the following people require to perform their role in the building industry? Place an asterisk (*) against those positions that have to be licensed or registered.

<table>
<thead>
<tr>
<th>Job title</th>
<th>Qualification/s required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architectural drafter</td>
<td></td>
</tr>
<tr>
<td>Structural engineer</td>
<td></td>
</tr>
<tr>
<td>Landscape architect</td>
<td></td>
</tr>
<tr>
<td>Building surveyor</td>
<td></td>
</tr>
<tr>
<td>Electrician</td>
<td></td>
</tr>
<tr>
<td>Plumber</td>
<td></td>
</tr>
<tr>
<td>Surveyor</td>
<td></td>
</tr>
<tr>
<td>Builder</td>
<td></td>
</tr>
<tr>
<td>Contracts administrator</td>
<td></td>
</tr>
<tr>
<td>Construction manager</td>
<td></td>
</tr>
</tbody>
</table>
Apprenticeships and traineeships

Apprenticeships and traineeships are another avenue for employment and training, offering on-the-job training while undertaking structured training (if necessary) at a registered training provider. Often the on-the-job training component can be used as credit or recognition of prior learning (RPL) towards a qualification, or units within a qualification.

The website <www.trainingwa.wa.gov.au/apprenticentre> is a great place to find out more about apprenticeships and traineeships available within the building industry.
Section 4 – Industry information

Introduction

Depending upon the chosen career path, there is a huge amount of information a future employee of the residential building industry has to know, or at least know where it can be found, as part of the job involved.

No matter whether you are a drafter or estimator with a one-year certificate, a building surveyor with a four-year degree, or an architect with a five-year master’s degree in architecture, there is always going to be industry-specific information, such as the Building Code of Australia (BCA) and the Residential Design Codes of Western Australia (RCodes), that anyone in the building industry will need to know as part of their daily work practices.

Information such as that contained in Australian Standards® (AS) and the BCA needs to be available for reference at times when that information is required – no one is expected to remember the contents of over one thousand standards that relate to the construction industry, but you do need to know where to get hold of that information.

In this section, you will find out how to access some of that information from the many and varied sources available.

Performance criterion

1.4 Identify and use sources to research information relevant to the residential building industry
Accessing information

There are numerous sources of information available today that provide an enormous amount of information for residential building projects. You’ll need to know where to get access to this information, as the cost of purchasing it all would be too high. Here are some suggestions for where you can find useful industry information:

- printed media, such as trade journals, newspapers, magazines
- people, such as industry leaders, managers, professionals and tradespersons
- trade shows
- professional associations
- Codes, standards and legislation
- manufacturer’s product brochures
- sales brochures from residential builders
- internet websites
- product display centres and display homes.

Can you name examples of some of these sources? Complete the following class activity in conjunction with a class member, with assistance from your lecturer.

Activity 4.1 Sources of industry information

Name two examples of each of the following sources of residential building information. One example has been done for you.

<table>
<thead>
<tr>
<th>Newspapers</th>
<th>The West Australian</th>
</tr>
</thead>
<tbody>
<tr>
<td>Television shows</td>
<td></td>
</tr>
<tr>
<td>Magazines</td>
<td></td>
</tr>
<tr>
<td>Display centres</td>
<td></td>
</tr>
</tbody>
</table>
Assessment 1 – Industry information resource journal

Turn to Annex D to review Assessment 1 which requires you to produce an 'industry information resource journal'.

You will work on this journal over the next few weeks with time provided in class for some of the information to be discussed and located. Your lecturer will guide you through the assessment as the sessions progress but you will also be required to spend some out-of-class time on sourcing the contents of the journal for later submission.

A sample assessment will be provided to illustrate typical content and the submission format. Please read the instructions for the assessment thoroughly, and ask your lecturer if you need any clarification on what is required. Your journal is due at the end of Session 13.

<table>
<thead>
<tr>
<th>Trade shows</th>
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<td></td>
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<table>
<thead>
<tr>
<th>Building products</th>
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<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Product manufacturers</th>
<th></th>
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<td></td>
<td></td>
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<td></td>
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</table>

<table>
<thead>
<tr>
<th>Websites</th>
<th></th>
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<td></td>
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</tbody>
</table>
Section 5 – Industry research

Introduction

It goes without saying that, these days, searching for information is greatly enhanced by the use of the internet, but that is not the only source of information for the residential building industry.

Performance criterion

2.2 Carry out research using printed and electronic media and document findings

Research

As part of the work towards the completion of your journal for Assessment 1, this section will provide you with the opportunity to work with other learners to source the information required.

Assessment 1 – Industry information resource journal

Continue with Assessment 1 from the last section.

Review printed media such as newspapers, magazines, journals, trade literature and so on, to locate examples of the information required for your industry information Resource Journal.

Identify relevant internet sites that provide some of the information and store them in your ‘favourites’ list. You may need to visit your library to access some of these resources.
Section 6 – Industry terminology

Introduction

Every industry has its own language and the construction industry is no different. Many words, terms and phrases are not found in everyday use, so future employees of the industry have to be mindful of the specific terminology.

Apart from spoken terms, written expressions have even more importance, as many documents are legal in nature and, therefore, have to withstand scrutiny at law.

In this section, you will be looking at a broad overview of the terminology commonly used in the residential building sector specifically, and the construction industry in general. Resources required for this section include BCA volumes 1 and 2 and state residential planning codes. Your lecturer will provide copies of these publications.

Performance criterion

2.1 Become familiar with common terminology used within the construction industry and particularly the residential building sector

The BCA classifies buildings, or parts of buildings, in accordance with the purpose for which it is designed, constructed or adapted to be used. There are ten classifications (classes), with some having parts a, b and c. Classes 1 and 10 cover residential buildings, while Classes 2 to 9 cover all other buildings.

Activity 6.1 Volumes of the BCA

Review BCA volumes 1 and 2 in small class groups of 2–3 people.
Locate the sections which explain the many definitions used in the industry, noting the page number and section title for each volume.
What are the differences between the lists of definitions in each volume?
Non-residential buildings are further divided into ‘types’ in relation to their heights and in accordance with their fire rating requirements. There are three types of non-residential buildings where type A has the highest fire rating and type C the lowest. Classes of buildings are then specifically allocated a type in accordance to the ‘rise in storeys’ for a particular class of building.

**Activity 6.2 Building classifications**

Review BCA volumes 1 and 2 in small class groups of 2–3 people. Locate the sections dealing with project classifications and types, then note two examples of buildings classified or typed as written below.

| Class 1 |  |
| Class 10 |  |
| Type A |  |
| Type B |  |
| Type C |  |
Types of residential buildings: by construction

Residential buildings can be:

a) single storey or two-storey dwellings on a single site
b) a terrace house, town house or villa
c) group dwellings, such as a duplex or triplex
d) multi-storey buildings, such as flats, town houses and apartments
e) dwellings over commercial premises or ‘mixed use’ projects.

Activity 6.3 Your building type

Which type of building do you live in?

The construction of residential buildings can take many forms. Typically though, houses are constructed using:

• double brick – cavity wall construction
• single-leaf framed construction (timber or steel)
• brick veneer – where the brick leaf is on the external face of the wall
• ‘reverse’ brick veneer – where the outer leaf is the framed construction
• a mixture of the above – particularly with additions work
• alternative forms of construction – rammed earth, mud brick, straw bale, pole homes etc
• transportable or kit homes delivered to a site in various components.

Activity 6.4 Your building’s construction

Which type of construction listed above best describes the construction of your home?
Roof construction is usually named by the ‘style’ of the roof pitch (slope) in combination with changes of direction within the floor plan. Examples are:

- hip roof
- hip and valley roof
- gable roof
- skillion roof
- roof with ‘gablets’ or other forms of decoration.

There are also combinations of the above. Roof coverings are mostly tiles (clay or concrete) or metal decking such as the popular tin Custom Orb® roofing.

Activity 6.5 Your roof

What type of roof does your home have?

________________________________________

What material is the roof made from?

________________________________________

Types of residential buildings: by design style

The design styles of residential buildings have evolved over the years since Australia was first founded. In those early days, pioneers adapted home styles from England to suit the Australian climate.

Iconic styles from the 1800s included the Federation style and the ‘Queenslander’, both of which still have their merits today. The Art Deco movement had an influence on styles in the 1930s, as did American architecture with the Californian bungalow after the Second World War.

During this period, Australia became more self-sufficient, and as architects and designers became less reliant on what was happening elsewhere in the world, an ‘Australian’ style emerged. Project homes first appeared in the 1960s to meet a growing demand for more cost-effective housing. These homes relied on mass production of the same version of a house to increase economies of repetition.
As people became more affluent, there came a revolution in housing in the late 1980s and 90s. Larger homes were being built with more amenities: for example, four bedrooms, games and family rooms, larger kitchens with more appliances and so on, even though plot sizes started to reduce. To accommodate all this need, the two-storey home became more the norm. Children of the post-war ‘baby boomers’ wanted to live in homes that were the same size or larger than the ones they lived in as children, rather than start small and extend their houses as their own families developed.

Today, we have another revolution happening, as our aging population of baby boomers no longer need large family homes while generations X and Y are finding it difficult to afford the lifestyle they may have grown up with.

State governments have had to address this change, and in many cases they have decreased land sizes so that more people can live closer to city centres. This has been done via their respective residential planning codes. Multi-residence developments are encouraged while older blocks of land are carved up (subdivided) into smaller parcels to increase housing densities around public transport hubs, such as railway stations.

More recently, home styles are being referred to as ‘classic’, ‘modern’ and ‘contemporary’. They are still larger, or more sophisticated, than the homes of the 1950s and 60s, but their designs provide for a comfortable living style far removed from that time.

Project home builders are usually flexible with their designs, allowing clients to adapt them to suit specific climates, orientations, situations and lifestyle requirements.

**Activity 6.6 Age and style**

How old is your home?

How would you classify its style?
Activity 6.7 Project builders

Using the internet, and with guidance from your lecturer, search for three project home builders in your local area and describe the type of homes they build.

Note the building companies’ names, the styles, construction methods and materials they typically use for their particular homes. Also, write down their web addresses for future reference.

1. Builder:
   ___________________________________________________________
   ___________________________________________________________
   ___________________________________________________________
   ___________________________________________________________
   ___________________________________________________________

2. Builder:
   ___________________________________________________________
   ___________________________________________________________
   ___________________________________________________________
   ___________________________________________________________
   ___________________________________________________________

3. Builder:
   ___________________________________________________________
   ___________________________________________________________
   ___________________________________________________________
   ___________________________________________________________
   ___________________________________________________________
Planning codes and documentation

Local government and councils are at the forefront of the approval processes, ensuring that all building works are designed in accordance with planning regulations and built in accordance with the provisions of the BCA.

Your lecturer will provide a copy of the residential planning codes applicable to your state or region. For this next activity, you’ll need to review this document, noting the summary tables that specify land or block sizes, setbacks to buildings on sites, building heights and so on, as they apply to particular areas within council boundaries.

Activity 6.8 Documentation

Using the internet, search for the website for your local government council. Find the council’s planning or development approval application form(s) and the building licence application form(s), and print a copy of each one. Using these forms, answer the following questions.

1. Local council’s name:
   __________________________________________________________
   __________________________________________________________
   __________________________________________________________

2. Web address:
   _________________________________________________________

3. What information is required on a Planning/Development Application Form?
   _________________________________________________________
   _________________________________________________________
   _________________________________________________________
   _________________________________________________________

4. What information is required on a Building Licence Application Form?
   _________________________________________________________
   _________________________________________________________
   _________________________________________________________
   _________________________________________________________
Develop residential building industry knowledge
Section 7 – Common building terms

Introduction

Now that you have an understanding of the terminology used in the residential building industry, it’s important to employ it in a correct and proper manner when speaking and writing to clients, other industry people, authorities and your colleagues.

Construction terms and notes on drawings are especially important because wrongly worded documents can affect the outcome of a project should misunderstandings occur as a consequence of using incorrect terminology.

In this section, you’ll look at some common building terms and start to build your industry vocabulary. For this section you may need to refer to the book *HB 50–2004 Glossary of Building Terms* (Standards Australia) – your lecturer will provide a copy.

Performance criterion

2.3 Correctly use common building terms in conversations and in relevant written notes with colleagues

Building terminology

As a new member of the industry, you will be expected to know what the most common terms mean and be able to explain them when they appear on a drawing, in a specification or a document.

While notes on a drawing may not use perfect English expression, they are still required to be an accurate summary of what is to eventually take place on a construction site. Correct spelling is of the utmost importance and mistakes cannot be tolerated in any circumstance.

Drawings are legal documents: should there be a dispute as to the content of a drawing, such as spelling mistakes, incorrect terminology, or terms used out of context, you may cause serious liabilities for other people in the process.
### Activity 7.1 Building terminology

Using *Glossary of Building Terms*, look up the following examples of building terminology and make notes ‘in your own words’ as to the meaning of the terms.

<table>
<thead>
<tr>
<th>Term</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concrete raft footing and slab</td>
<td></td>
</tr>
<tr>
<td>Strip footing</td>
<td></td>
</tr>
<tr>
<td>Pad footing</td>
<td></td>
</tr>
<tr>
<td>Brickwork</td>
<td></td>
</tr>
<tr>
<td>Cavity brick wall</td>
<td></td>
</tr>
<tr>
<td>Brick pier</td>
<td></td>
</tr>
<tr>
<td>Frame construction</td>
<td></td>
</tr>
<tr>
<td>Brick veneer construction</td>
<td></td>
</tr>
<tr>
<td>Hip and valley roof</td>
<td></td>
</tr>
<tr>
<td>Gable ended roof</td>
<td></td>
</tr>
<tr>
<td>Skillion roof</td>
<td></td>
</tr>
<tr>
<td>Roof covering</td>
<td></td>
</tr>
<tr>
<td>Solid plaster</td>
<td></td>
</tr>
<tr>
<td>Plasterboard wall and ceiling linings</td>
<td></td>
</tr>
</tbody>
</table>
Activity 7.2 Mystery term 1

Your lecturer will give you a list of terms. Using correct construction terminology, explain them in writing and make sketches of them.

______________________________________________________________

______________________________________________________________

______________________________________________________________

______________________________________________________________

______________________________________________________________

Sketch:
Activity 7.3 Mystery term 2

Using correct construction terminology, explain in a short spoken presentation what your allocated construction term means. Make notes in the space provided below to help you with your presentation.
We have only looked at a small selection of the language of the building and construction industry. You may have already come across words and terms that you weren’t sure about – now’s your chance to find out what they mean!

**Activity 7.4 Terminology challenge**

Make a list of words, phrases and/or terms you’ve heard but aren’t sure of their meaning. See if anyone else in your class knows!

<table>
<thead>
<tr>
<th>Word/phrase/term</th>
<th>Meaning</th>
</tr>
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<tbody>
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</tbody>
</table>
Develop residential building industry knowledge
Section 8 – Contract documents

Introduction

Depending on which sector of the industry you are working in, the types of contract documents you have to produce, work from, or refer to can vary widely on a day-to-day basis. Most people would realise that an architectural drafter, for example, would be required to produce working drawings for a house but that may be only one aspect of his or her work in a drawing office.

A tradesperson on a building site may only want access to the drawings pertaining to his or her area of work, but the building supervisor will need access to all of the documents that make up a contract set.

So what are these ‘contract documents’? This section will examine some of them in detail, and your lecturer will provide samples to illustrate the content and format of each type.

Performance criterion

3.1 Identify main documents associated with construction of residential buildings

Categories of contract documents

Contract documents can be generally broken up into four categories, as follows.

Plans and specifications

The generic term for drawings is a plan, and it usually implies ‘working drawings’. These drawings contain the construction information which illustrates how a project is to be erected by a builder and tradespeople. Plans contain all the detailed instructions as to how a building will look, and will contain several drawings such as the floor plan, site plan, elevations etc.

A specification is the written description of all the details in a building project. It contains both legal and construction information expressed in words rather than in a drawn format. It also contains information which cannot be included on a drawing, for example, details about Australian Standards®, and Acts or codes, and how they are applicable to a project. The specification document will also detail insurance requirements for the project, legal liabilities of the client and builder etc, as well as all the detail of the building itself, such as what type of bricks must be used and the colour of paint for the external areas.
An **addendum** is a common inclusion in a specification, particularly with project housing. A project builder will usually have a standard form of specification for the construction of a residence while the addendum allows the client to select or nominate such items as paint selections, fittings and fixtures in bathrooms, wall and floor tiling choices.

**Documents for approvals**

These can be further broken down into two subcategories, as follows.

**Documents for client approval**

These can include the client/designer agreement, terms of engagement, a client brief, preliminary sketch drawings, 2-D and 3-D presentation drawings, and even animations illustrating how the project could look when it’s finally constructed. Clients of project builders would usually enter into a ‘preparation of plans agreement’ at this stage, after which documents are prepared for planning and building licence approval.

**Documents for development or planning approval**

Once a client has agreed to the above, documents are prepared for development approval or planning approval. The requirements for these documents are specified by councils and can be found on their websites.

The actual documents may vary from council to council, but usually include:

- a development approval or planning application forms
- drawings as specified for the type of project.

Once a project has development or planning approval, it can move on to the pre-construction stage, where documents such as the working drawings, specification, bill of quantities, building contract are prepared ready to seek a building licence approval.

**Company quality policy and standards**

These documents come under a company’s quality assurance (QA) certification. QA is often a requirement for practice in the industry, especially when work is being done for government contracts. It is also a marketing tool, as a QA certification gives clients confidence that the company designing or building their home has quality processes in place. A QA system is made up of four components.
1. **Quality manual** – contains all the documents describing the quality system.

2. **Quality procedures and checklists** – the forms that facilitate implementation, maintenance and improvements in the system.

3. **Task instructions** – a list of the sequential activities required to carry out activities.

4. **Quality records** – evidence that the stated quality requirements have, or have not, been met.

QA certification is provided by an auditor who checks that the processes in place to ensure a quality project are in fact being adhered to.

### Activity 8.1 Documentation

Review samples of these documents as provided by your lecturer and complete the following activity.

1. What are the obvious differences between planning drawings and working drawings?

   ________________________________________________________________

   ________________________________________________________________

2. What forms does your local council require for a planning and building licence approval submission for a residential building?
   (hint: review the website of your local council)

   ________________________________________________________________

   ________________________________________________________________

3. What is the purpose of a specification?

   ________________________________________________________________

   ________________________________________________________________

4. Who prepares a ‘bill of quantities’?

   ________________________________________________________________
Relevant regulations, including Australian Standards®

It is illegal to build any residential dwelling in Australia without a building licence and without adhering to the prescribed regulations. Some important regulations are listed here.

- **Building Act 2011 (WA)**
- Building Regulations 2012 (WA)
- Building Code of Australia (BCA)
- **Health Act 1911 (WA) or other equivalent state regulations**
- Health Regulations 1992 (WA) or other equivalent state regulations
- **Occupational Safety and Health Act 1984 (for WA) or other equivalent state act**
- Occupational Safety and Health Regulations 1996 (for WA) or other equivalent state regulations
- **Safe Design of Buildings and Structures 2008 (Code of Practice)**

Australian Standards® set out the minimum performance requirements for science, technology and systems. There are approximately seven thousand standards in total, with some 1500 of those relating to the building and construction industry. Your lecturer will provide examples of some of these documents for you to look at, and you will also investigate the standards in more detail in another unit of your course.
Section 9 – Legislation, regulations and licensing

Introduction

Satisfying relevant legislation, regulations and licensing requirements is a condition of the building licence and a legal requirement. There are also contractual requirements between the builder and the client. You need to be aware of the codes, legislation, standards, regulations and licensing requirements governing construction work before you can consider the ones that apply to your area of work.

Performance criterion

3.2 Identify the main forms of legislation, regulation and licensing in the residential building industry and sources of the documentation

The Building Code of Australia

There can be many definitions of ‘code’, but a simple one to remember is:

A code is a set of rules that must comply with a standard as an acceptable way of complying with those rules.

What is the BCA?

The Building Code of Australia (BCA) is Volumes 1 and 2 of the National Construction Code (NCC). The BCA is produced and maintained by the Australian Building Codes Board (ABCB) on behalf of the Australian Government and state and territory governments. The BCA has been given the status of building regulations by all states and territories.
The BCA Goal

The goal of the BCA is to enable the achievement of nationally consistent, minimum necessary standards of relevant health, safety (including structural safety and safety from fire), amenity and sustainability objectives efficiently. This goal is applied so:

• there is a rigorously tested rationale for the regulation
• the regulation generates benefits to society greater than the costs (that is, net benefits)
• the competitive effects of the regulation have been considered and the regulation is no more restrictive than necessary in the public interest, and
• there is no regulatory or non-regulatory alternative that would generate higher net benefits.

Proposals to change the BCA are subjected, as applicable, to a regulatory impact assessment process.

What does the BCA cover?

The BCA contains technical provisions for the design and construction of buildings and other structures, covering such matters as structure, fire resistance, access and egress, services and equipment, and energy efficiency, as well as certain aspects of health and amenity.


The Building Act and Building Regulations

The Building Act 2011 (WA) came into force on 2 April 2012 and brought about some significant changes to the building approvals process, from the design stage right through to completion.

The Building Regulations 2012 support the implementation of the Building Act 2011 by specifying what has to be done to ensure the Act is properly adhered to. The key objectives of the new Act are:

• to provide a comprehensive system of building control in Western Australia
• reduce building approval times
• set standards for buildings and demolition work in Western Australia
• deal with building or demolition work that affects other land.

Section 9 – Legislation, regulations and licensing

The commencement of the Building Act 2011 also introduces a new building services levy and private design certification services provided by registered building surveyors.

For more information, see:

Occupational health and safety legislation

In years past, the health and safety of workers was at the bottom of the list of concerns for many employers. Gradually conditions and work methods have improved. Stricter legislation and a more informed workforce (both workers and management) have resulted in workplace injuries and deaths being significantly reduced.

In Australia, we now have safety and health legislation that is among the best in the world. Each state has its own workplace health and safety department (WorkSafe in Western Australia) and both federal and state governments are working towards introducing safety and health laws that are uniform across Australia.

Workers are covered by laws that cover occupational health and safety. The mining industry has its own legislation and so do some Commonwealth agencies. They are all Acts of Parliament and therefore law.

The Act

In WA, WorkSafe is a division of the Department of Commerce, the Western Australian state government agency responsible for the administration of the Occupational Safety and Health Act 1984.

The principal objective of the Act is to promote and secure the safety and health of people in the workplace. You will learn all about OSH in a separate unit of your course.

For more information, see:
<www.commerce.wa.gov.au/worksafe>
Safe design of buildings and structures

The Safe Design of Buildings and Structures 2008 code of practice was developed through a process involving consultation with representatives from industry experts, employers, unions and government. In particular, this code of practice aims to:

- explain the legal obligations applicable to a person who is in control of, or who may have influence over, the design of a building or structure
- provide guidelines for ways in which these obligations can be met by providing practical guidance on ways of maximising safety in design.

Reproduced courtesy of WorkSafe, Department of Commerce, Western Australia <www.worksafe.wa.gov.au>.

For more information, see: <www.docep.wa.gov.au/worksafe/PDF/Codes_of_Practice>

Other legislation, regulations and licensing requirements

There are many other forms of legislation that can apply to residential buildings in Australia. The examples you've looked at here cover the minimum requirements in many instances, but you may encounter other specific legislation through your work in the industry, such as:

- Architects Act 2003 (WA)
- Bush Fires Act 1954 (WA)
- Contaminated Sites Act 2003 (WA)
- Dividing Fences Act 1961

A full list of state legislation can be found on the internet.

Western Australia’s state legislation can be found at: <www.slp.wa.gov.au/legislation>
Activity 9.1 Research legislation, regulations and licensing

In pairs or small teams, conduct some research on the internet to see what information is available on the websites provided through this section. Use the space below to make notes.

_________________________________________________________________________________
_________________________________________________________________________________
_________________________________________________________________________________
_________________________________________________________________________________
_________________________________________________________________________________
_________________________________________________________________________________
_________________________________________________________________________________
_________________________________________________________________________________
Section 10 – Current industry issues

Introduction

The residential building industry can be vulnerable to issues such as changing interest rates, requirements for new energy efficient measures to be built into new homes, the introduction of a carbon tax and many other factors that can affect public confidence in the industry.

It’s not only external issues though – building companies going bankrupt or becoming insolvent; being publicised for poor ethics or workmanship; union demands or actions on building sites; and accidents on building sites are issues from within the industry itself that can also have a negative perception in the public’s mind.

In this section, you’re going to research current industry issues with a view to discussing their effects and coming up with possible solutions.

Performance criterion

5.2 Monitor current issues of concern to the residential building industry

Issues affecting residential building

Your lecturer will provide you with copies of newspapers, journals, magazines or other appropriate print media to go through and look for reports or articles covering issues affecting the residential building industry. Alternatively, you can search the websites of the two major industry associations, the HIA and the MBA, to see if there are any problems for their members to address; or you can simply search the internet for ‘issues in the Australian building industry’.
Activity 10.1 Issues discussion

You’re going to participate in a discussion about an issue and its source. The following table will help you to gather this summary for discussion.

A current issue of concern to the residential building industry

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a)</td>
<td>What is the issue?</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>b)</td>
<td>What is the source of the issue?</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>c)</td>
<td>How is the issue affecting the industry?</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>d)</td>
<td>What could be a solution to the issue?</td>
</tr>
</tbody>
</table>

Assessment 2 – Industry issues paper

Turn to Annex D and review Assessment 2. For this assessment, you’re going to produce an ‘Industry Issues Paper’. You will work on this assessment over the next few weeks with time provided in class for some of the information to be discussed and located.

Your lecturer will guide you through the assessment as the weeks progress, but you will also be required to spend some out-of-class time on sourcing the contents of the submission.
Section 11 – Basic construction principles

Introduction

The construction of a residential project starts at the planning stage, when a designer sits down with the client to make decisions about things such as the design, materials, construction systems and finishes. Drawings are developed to express the designer’s ideas, and he or she prepares a design for the client to approve.

Once a decision is made by the client, planning and construction drawings are prepared and submissions are made to the local council for the various licences and approvals required. A builder is chosen for the construction phase and the work on-site commences.

Project home builders provide this design service in-house and often have display homes or centres with a catalogue of available homes that prospective clients can visit. Display centres showcase available products and finishes that project builders might use, although clients can often select from a wide range of other options according to their budget, personal taste and lifestyle requirements.

The physical construction of the building is supervised by the builder as the tradespeople carry out their various trades to bring the home to completion. The builder is responsible for ensuring that the finished home will comply with such regulations as the BCA.

We will now consider some aspects of those construction principles to demonstrate their importance to the design and construction of a residential building. You’ll need access to BCA Volume 2, Class 1 and Class 10 – Housing Provisions for this section.

Performance criterion

4.1 Demonstrate an understanding of basic scientific principles relevant to physical construction of residential buildings
During the design phase, a designer needs to consider many things, such as how:

- the building is going to be supported by the soil it will be erected on (or in)
- the various parts of the building will be supported
- stresses and strains associated with the building’s components will be dealt with
- the building will be constructed to allow for the effects of wind, earth movement and tremors
- to prevent water intrusion.

These basic construction principles are covered by the BCA Volume 2 for residential buildings.

**Properties of basic soil types**

The soil, or more correctly the ‘foundation’, upon which a building is to be erected is classified according to AS 2870:2011 *Residential slabs and footings*. The classification system is based on a foundation’s potential for movement from moisture change.

**Site classes and foundation types**

<table>
<thead>
<tr>
<th>Class</th>
<th>Foundation type (refer to BCA Volume 2, Section 3.2.4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Sand and rock sites with little or no movement from moisture changes</td>
</tr>
<tr>
<td>S</td>
<td>Slightly reactive clay sites with slight potential for movement</td>
</tr>
<tr>
<td>M</td>
<td>Moderately reactive clay or silt sites with moderate potential for movement</td>
</tr>
<tr>
<td>H</td>
<td>Highly reactive clay sites with high potential for ground movement</td>
</tr>
<tr>
<td>E</td>
<td>Extremely reactive clay sites with extreme potential for movement</td>
</tr>
<tr>
<td>P</td>
<td>Sites which include soft soils, soft clay or silt, collapsing soils, soils subject to erosion and subsidence</td>
</tr>
<tr>
<td>A to P</td>
<td>Filled sites are specifically covered by AS 2870:2011 <em>Residential slabs and footings</em></td>
</tr>
</tbody>
</table>

These foundation types vary greatly across Australia, and even within a state or territory.
Section 11 – Basic construction principles

Activity 11.1 Site class and foundation types

Which site class and foundation type is your home built on?

Load bearing and non-load bearing structures

Once the type of foundation has been determined, usually by a structural or civil engineer, the designer (in conjunction with the engineer) then has to consider how the load of the building is to be distributed.

The total load of a building is calculated by taking the total weight of all the materials used in its construction (this is termed the ‘dead load’), and adding the potential content of the building, including items such as furniture and people (termed the ‘live load’). The engineer uses this calculation to ensure the total load can be supported by the method of construction and safely transferred through to the foundation.

Concrete footings and slabs, timber stumps or brick piers on a concrete pad with framed floors are typical construction methods used to transfer the load of a building to the foundation.

Activity 11.2 Load bearing

Refer to BCA Volume 2, Section 3.2.5 for examples of construction details related to load bearing.

These details show that not all walls in a house have to be load bearing. All external walls generally are, but only some internal walls need to be load bearing.

Activity 11.3 Floor or ground level construction

What type of floor or ground-level construction is your home made of?
Stresses and strains

As you can imagine, all structures are subject to stresses and strains on a constant basis. Have you ever felt your home ‘move’ or heard it ‘groan’ or creak under certain weather conditions, and wondered what prevents it from being blown away in high winds or falling apart when this movement occurs?

BCA Volume 2, Section 3.3 provides for this by specifying that:

• steel rods or mesh are used in the concrete footings and slabs or masonry walls to provide reinforcement
• expansion joints are used in all forms of construction
• bracing is applied to all framed walls and roofs
• tie-down methods are used to ensure the roof remains connected to its supporting walls
• reinforcement is applied over openings in walls
• the height-to-width ratios of building components is restricted.

These codes help to ensure that your house remains in one piece under all but the most extreme conditions, such as cyclones or earthquakes (these conditions require special treatments).

Activity 11.4 House noise

Under what conditions does your house make the most noise?

Techniques to overcome sagging

Most people would appreciate that if a piece of timber, supported at its two ends by posts, will sag or bend if it is overloaded by too much weight in its middle.

BCA Volume 2, Section 3.4 indicates how this sagging in a structure, be it steel or timber, has to be catered for. Details are provided for possible construction techniques that can be used to reduce the incidence of sagging in a roof or floor frame.

In a house, the roof is the major part of the construction subject to occurrences of sagging. Similarly, framed-floor construction can suffer from the same design problems if sagging has not been considered in its design. The BCA recommends maximum distances of spacing for roof and floor members based on the load they have to carry and a size for each member of the roof or floor frame. These recommendations cover both timber and steel framing.
Activity 11.5 Sagging

Refer to BCA Volume 2, Section 3.4 to examine how the suggested details overcome the problems of sagging.

Techniques to cater for wind, earth tremor, water or moisture flow

Water and moisture flow

From the point of view of moisture exclusion from a home, the roof plays the major part in the process. BCA Volume 2, Section 3.5 deals with roof and wall claddings, describing in detail how a roof is required to have gutters, downpipes and flashings to cater for the predicted amount of rain a location might receive in a statistically known period of time. The BCA even provides expected average rainfall figures for locations across Australia to use as a basis for the design of these roof components.

Likewise, walls have to be waterproof and the BCA explains how this can be achieved by using cavity wall construction, flashings at openings, water-resistant materials on walls and so on, to keep water out of a home. At ground level, a concrete slab has to be laid on a waterproof membrane and walls on the footings and slab have to have a damp-proof course installed to ensure water does not penetrate and move up the wall and into the house.

On the ground itself, stormwater drainage has to be provided to ensure any run-off from the building is properly channelled away from the house and into the ground via soak wells or sumps.
High wind conditions

Areas of Australia that experience high wind conditions (at times, that can be almost any part of the country, not just those in cyclone-prone areas) have a problem that requires special attention from a designer and engineer. These areas are termed ‘high wind areas’ and BCA Volume 2, Section 3.10.1 addresses their requirements.

For high wind areas, the BCA recommends using increased bracing systems in the construction of the building, and the use of anchorage systems to ensure the home does not, quite literally, blow away. Unfortunately, in the worst cyclonic conditions, even these extreme construction measures are not always successful.

Earthquake areas

Some areas of Australia are subject to earthquakes and tremors which means that, homes built in those areas, require additional measures to be taken to protect them from damage. Unfortunately, we have experienced some severe earthquakes in our history and older buildings, in particular, have not fared too well.

BCA Volume 2, Section 3.10.2 deals with the codes for homes built in earthquake areas. The BCA states that most domestic structures do not require specific design provisions for earthquakes and tremors, as the construction methods recommended for wind resistance is usually sufficient for earthquake resistance. Some limitations to building heights and roof slope may apply in certain circumstances and the engineer would need to be aware of those requirements when designing the structural components of a residential building if it’s being built in an earthquake area.

Activity 11.6 Building safe homes

Can you remember a time when high winds and/or an earthquake have caused damage to homes? If so, what type of construction seemed to survive best?
Section 12 – Common construction issues

Introduction

Even when a builder follows all the requirements and codes in the BCA, construction issues can arise on a residential building site at any time. These issues can sometimes be attributed to poor design, poor attention to work practices on-site, lack of supervision of tradespeople, incorrect use or selection of materials; but also, sometimes things just go wrong.

Not every construction detail is provided in the BCA – only examples are provided, as every project and design is different. That's why it's important for builders to have good experience and knowledge of their own. In this section, you'll look at some common construction issues with a view to developing an understanding of how they might be addressed.

Performance criterion

4.2 Develop an understanding of how construction techniques are used to address standard problems

Problems and solutions

Construction problems can be grouped by the phase of the building program in which they occur, or by the trade that has responsibility for a phase of work.

In this next activity, you're going to consider some common problems and discuss how the problems might be addressed. As part of the solution, and where appropriate, sketch a construction detail that could address the problems. Your lecturer will give you time to work through these problems and conduct a group discussion to consider solutions.

Hint: BCA Volume 2 has the answers to most of these issues. Refer to the relevant section of the BCA and note the section number in the solutions column.
## Activity 12.1 Solving problems

Review the following table and suggest solutions to the problems listed.

<table>
<thead>
<tr>
<th>Construction phase or trade</th>
<th>Problem</th>
<th>Outcome</th>
<th>Solution (and BCA section number)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site works</td>
<td>Incorrect compaction of the site, holes and debris not properly attended to</td>
<td>Subsidence, slabs cracking, paving sinking</td>
<td></td>
</tr>
<tr>
<td>Concrete</td>
<td>Not cured correctly or sufficiently</td>
<td>Cracks in slab</td>
<td></td>
</tr>
<tr>
<td>Brickwork</td>
<td>Mortar not mixed correctly, wrong proportion of materials</td>
<td>Weak jointing, mortar fretting and wearing, brickwork cracking</td>
<td></td>
</tr>
<tr>
<td>Roof</td>
<td>Roof sagging, incorrect timbers used</td>
<td>Unsightly roof outline, roof integrity subject to failure</td>
<td></td>
</tr>
<tr>
<td>Roof plumbing</td>
<td>Falls in gutters inadequate, insufficient number of downpipes, flashings not installed correctly</td>
<td>Roof leaks</td>
<td></td>
</tr>
<tr>
<td>Window installation</td>
<td>Windows not built-in correctly, gaps between frames and walls, flashings missing or incorrectly installed</td>
<td>Windows leak, inside walls get wet</td>
<td></td>
</tr>
<tr>
<td>Wall plastering</td>
<td>Thickness of plaster insufficient, incorrect mixtures used, plaster coat too thin</td>
<td>Wall finish uneven and porous, chips easily</td>
<td></td>
</tr>
<tr>
<td>Painting</td>
<td>Wall surface not prepared properly, wrong paint type selected</td>
<td>Paint fails to adhere to wall properly, peels and cracks.</td>
<td></td>
</tr>
<tr>
<td>Wall tiling</td>
<td>Tiles in showers not properly waterproofed</td>
<td>Showers leak through walls</td>
<td></td>
</tr>
</tbody>
</table>

Perhaps you have seen some of these problems – either in your house, or in houses you’ve visited.
It would be unusual for any residential building not to have some construction issues. Mostly these will be cosmetic and the fabric of the building will still be structurally sound and waterproof. When a home is built, contracts include a period of maintenance, during which time the home owner can identify and list any defects that have to be addressed by the builder – this period can be between three to six months.

Builders also have to provide a period of structural warranty where by the ‘structural integrity’ of the home is guaranteed for a much longer period of time (10–20 years is usual).

Once the home is handed over to a client there is an accepted understanding that the owner will maintain the property to a good standard. Problems caused by poor maintenance by the owner are not the responsibility of the builder.

<table>
<thead>
<tr>
<th>Problem</th>
<th>Likely construction phase or trade</th>
<th>Outcome</th>
<th>Solution (and BCA section number)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tr>
</tbody>
</table>
Develop residential building industry knowledge
Section 13 – Ethical and moral obligations

Introduction

While every project you might come across in the industry is not necessarily going to run smoothly, you are still expected to perform to the best of your abilities with each project and all clients. Most businesses pride themselves on providing good honest service for their clients in return for a reasonable remuneration. In fact, businesses who don’t subscribe to this philosophy generally do not remain in business for long.

You are obligated to act morally and ethically when in business, no matter if you’re the employer or the employee. Everyone has a part to play in ensuring the client gets what he or she pays for in a reasonable and timely manner.

In this section, you’ll look at some aspects of your ethical and moral obligations and how you might be expected to behave once you enter the industry.

Performance criterion

3.3 Identify ethical expectations consistent with well respected enterprises in the industry

There are several ways in which a business can communicate to prospective clients the manner in which they will be treated and respected as a customer of the business.

Mission or vision statements

These statements are often found on a company’s website (often in the ‘About us’ section) or in its brochures. The purpose of the statement is to make the public aware of what the company stands for – what the company is all about, its philosophies, goals, and ambitions. Take a look at this example.
A mission or vision statement is usually only a small statement of a paragraph or so, and it often reads like a goal or an ideal that the company is aiming for. In addition to the mission statement communicating to clients, it can also be used to clearly communicate the company’s philosophy to employees. A business that operates without a mission statement runs the risk of not knowing where it’s going.

**Activity 13.1 Mission/vision statements**

See if you can find the mission statement of three well-known building companies. Read the statement, and describe what it communicates to you.

<table>
<thead>
<tr>
<th>Company</th>
<th>Mission/vision statement</th>
<th>What this tells you</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>
Perhaps one day you will have your own building or construction company, and you’ll need a mission statement of your own! What will you want that statement to communicate to your employees, customers and competitors?

Activity 13.2 Your own company
If you were to set up your own business in the construction industry, what might your mission statement be?

Code of ethics
The term ‘ethics’ describes the morals and values that guide the behaviour and conduct of a person or company. A company’s code of ethics is a statement for everyone to read and know that these are the personal and business standards with which they conduct themselves.

The following page contains an excerpt from an example of a code of ethics published by the Housing Industry Association (HIA) on their website. As you can see, it clearly communicates exactly what ethics the HIA has committed to in relation to the way it deals with customers, employees and other parties.
HIA National Code of Ethics

The Association and its Members are committed to promoting the highest standards of customer service, workmanship and business conduct, and full compliance with all applicable laws, regulations, codes and standards.

In order to do that, the Association has for many years had various Codes of Conduct applying in particular states and territories. This National Code of Ethics has been developed by the Association, in consultation with the Australian Competition and Consumer Commission, to apply throughout Australia, to ensure that the same high standards of commercial conduct shall be observed by all its Members in their dealings with each other, suppliers, customers and with the public.

This Code has been designed to comply with Australian Standard AS4269–1995 on Complaints Handling and Australian Standard AS 3806–1998 on Compliance Programs.

HIA National Code of Ethics – The Principles

All Members of the Housing Industry Association have agreed to be bound by the HIA National Code of Ethics, under which they shall at all times conduct their business so as to:

1. Provide products and services with competence, fairness, value, honesty and integrity.
2. Ensure that all products and services they provide are delivered as advertised, and that all claims made are genuine.
3. Ensure that standards of workmanship are provided as promised to the customer, in accordance with the appropriate industry practice for the class of work concerned, and in a manner which shall enhance the reputation of the industry.
4. At all times conduct their business in free and fair competition, and refrain from making any misleading or untrue statements about other Members.
5. Avoid any action which might bring the Association and its Members into disrepute.

Text reproduced courtesy of Housing Industry Association Ltd.

For more information, see:
Case study – Bill Evanich

Bill Evanich runs a building design practice employing a range of senior and junior staff. A client approaches him to design and prepare council drawings for a large residential group dwelling.

The client asks for an indication of the fees Bill would charge for this work. Bill comes up with a fee proposal based on using his senior staff to do the drawing work. The senior designers are charged at a higher rate than the junior staff, to cover their higher salary.

Bill is awarded the project, but uses his junior staff to do the drawings under the direction of one of the senior staff. The client is unaware of this ‘change’ of staff.

Activity 13.3 Ethics

Is this an ethical and morally acceptable way for Bill to charge his client? Talk to others in your class, and note your comments.

________________________________________________________________________

________________________________________________________________________

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________________________________________________________________________
Quality assurance (QA)

As briefly described in a previous section, QA is a certifying process which describes the processes in place by which an organisation or business will meet its obligations in accordance with quality standards.

A business that has been certified as having globally recognised QA systems in place can then legally display StandardsMark™ known as the ‘five ticks’ logo that signifies its certification. This certification system is measured against ISO 9001:2008 *Quality management systems – requirements* published by the International Organization for Standardization. You’ll often see it displayed on a company’s website, in brochures and other materials.


Activity 13.4 QA documents

Can you think of three documents that would be used as part of a QA system in a drawing office?

1. ________________________________
2. ________________________________
3. ________________________________

It is often said in business that the best reference you can have is from satisfied customers. People will talk about good service they receive, but they will talk a lot more about their experiences with bad service. Negative reviews are bad news for any business.

How many times have you had bad service and complained to others about it? People often don’t complain directly to the person or company, but they will almost always tell at least one other person about their bad service experience. How many times have you heard someone say ‘Oh don’t go to “such and such”, they’re terrible!’?

Following quality assurance processes helps a company ensure that they are consistently providing a professional level of service.
Section 14 – Opportunities and knowledge

Introduction

As you embark on your career in the residential building industry, it’s important that you stay up to date with modern trends in design and construction techniques, improvements in construction processes, regulatory changes, new materials and all that goes together to create a project for a client.

Much of this new knowledge can be gained from services such as industry associations, training institutions and product suppliers. Once you become a member of the building industry, you must maintain knowledge of the most recent updates. This may require you to:

• undertake a program of professional development and/or training
• maintain membership of a professional or industry association
• gain registration or licence to practise in a certain field.

A course such as the one you’re currently completing is just the first step towards a working life of continuous learning. This section explores some of the opportunities you could pursue to improve your industry knowledge on a continuous basis.

Performance criterion
5.1 Identify and use a range of opportunities to update general knowledge of the residential building industry

Industry associations

There are numerous industry associations you could join and your choice will depend on the qualifications you have, your experience, the type of company you work for, and your future career goals.

Let’s look at a few you could consider. The information provided here has been adapted from their websites.
Housing Industry Association (HIA)
The Housing Industry Association is Australia’s largest residential building organisation. Members include builders, trade contractors, design professionals, kitchen and bathroom specialists, manufacturers and suppliers. The HIA is the voice of Australia’s home building industry and the peak body representing all facets of the industry.

The HIA is unique. It is the only national industry association for all building professionals, representing the interests of the whole housing industry — from trade contractors, builders and suppliers to product manufacturers.

<hia.com.au>

Text reproduced courtesy of Housing Industry Association Ltd.
Logo reproduced courtesy of Housing Industry Association Ltd.

Master Builders Australia (MBA)
Master Builders is the major Australian building and construction industry association. Its primary role is to promote the viewpoints and interests of the building and construction industry and to provide services to members in a broad range of areas including training, legal services, industrial relations, building codes and standards, industry economics and international relations.

Master Builders’ membership consists of large national, international, residential and commercial builders and civil contractors through to smaller local subcontracting firms, as well as suppliers and professional industry advisers. Membership of the MBA movement represents 95% of all sectors of the building industry.

<www.masterbuilders.com.au>

Reproduced courtesy of Master Builders Australia.

Australian Institute of Building (AIB)
Founded in 1951, the AIB is the leading institute for building and construction professionals, acknowledged for its ability to bring individuals together who share a common interest in improving the standing of the building profession and their career within Australia and overseas.

For more than fifty years, the Institute has worked with the building and construction industry, government, universities and allied stakeholders to promote the building profession, support the development of university courses in building and construction whilst promoting the use of innovative building techniques and a best-practice regulatory environment.

<www.aib.org.au>

Reproduced courtesy of Australian Institute of Building.
Activity 14.1 Industry associations and organisations

Do some research to find two other associations or organisations that are relevant to your chosen career in the residential building industry.

1. 

2. 

Registered training providers

TAFE

The major registered training provider (RTP) in any state or territory is the technical and further education (TAFE) system. In addition to nationally accredited courses, most TAFE colleges offer short courses and specialist programs depending on the level and type of training you need.

Private registered training providers

Private registered training providers offer courses of many types, often with a focus on shorter courses for a particular industry or field within an industry.

Universities

Universities focus on training at degree level or higher. Depending on the career choices you make, you may have to enrol at a university to gain a degree to be able to practice in a particular field of the industry – for example, engineering is a specialist field requiring a university-level qualification.
Activity 14.2 Training options

Do some research to find out what training is available in your local area. Find at least one training provider offering a course that's relevant to your interest in the residential building industry, and make some notes here about what's available.

__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________

Using the internet for information

The internet is often the first place you would go to look for information. However, not all websites are well-maintained or current, so you need to be careful about taking the information 'as read'.

Once you have located the information you are seeking, you should always contact the company or source direct to ensure you have the most up-to-date information.

If you know a website is going to be used again, make sure you store the website's address in your list of favourites on your browser.

Activity 14.3 Building knowledge

Using the internet, find three websites that are going to be useful to you in increasing your knowledge of the building industry. List the website address here, with a brief note about the information available.

1. _______________________________________________________________________
   _______________________________________________________________________

2. _______________________________________________________________________
   _______________________________________________________________________

3. _______________________________________________________________________
   _______________________________________________________________________

__________________________________________________________________________
__________________________________________________________________________
Subscriptions to publications

By subscribing to some of the many types of print media related to the industry, you can receive magazines, journals, product and materials news, at regular intervals that will provide immediate and up-to-date information related to almost any facet of the industry.

Some websites also provide a subscription service, where you can receive newsletters and information via email.

Activity 14.4 Subscription services

Using the internet, search using terms like ‘building product news’, ‘modern house designs’ and see if you can find two websites, publications or newsletters that provide a subscription service. Make a note here of the websites you find, and what’s available.

1. 

2. 
Newspapers

As we have seen already in previous sections, newspapers are a constant source of information on a daily basis, especially those papers that have a section dealing with homes and related residential building industry content.

Weekend newspapers often have large sections or magazine inserts that specifically focus on the industry. Your local community newspapers are a good source of specific local information which is often topical for a particular suburb or region.

If you did nothing else by way of subscriptions, reading your local newspaper can provide you with a wealth of up-to-date information.

Activity 14.5 Newspapers

With the help of your lecturer, find out what newspapers are available in your area, and what (if any) information related to the residential building industry they offer (e.g., a weekly ‘Focus on building’ or ‘New homes’ section or similar). Make a note here of what you find out.

Professional development

Professional development (or PD as it is often known) will be something you will have to consider as part of your working career. This applies to most careers these days, not just the residential building industry.

Many industry associations offer courses or PD workshops, conferences and seminars that you could access if you’re looking for PD opportunities. By joining an industry association or enrolling in PD, you will be able to identify a range of opportunities to update your general knowledge of the residential building industry.
Activity 14.6 Professional development

Go to the HIA's website at <www.hia.com.au> and from their training calendar, make a note of three training courses they are currently offering to their membership that are directly relevant to the residential building industry.

<p>| | |</p>
<table>
<thead>
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<tbody>
<tr>
<td>1.</td>
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<tr>
<td>2.</td>
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<tr>
<td>3.</td>
<td></td>
</tr>
</tbody>
</table>
Develop residential building industry knowledge
Section 15 – Unit summary

Introduction

Over the past weeks, we have covered a lot of ground to introduce you to the industry that accounts for a large proportion of the nation’s investment in jobs, finance, property, income, etc.

Performance criteria

All

Review of assessments

The elements of competency we have covered through this guide describe the desirable outcomes of this unit of competency (UOC). These five elements were further broken down into performance criteria (PC) and it is your understanding of these PCs that were examined by the two items of assessment and the various activities you have completed along the way.

Your lecturer will now return your assessments and provide you with feedback.

Do you remember the following, from the beginning of this guide?

This guide takes you through the process of learning how to apply relevant industry knowledge to the services you could provide to the residential building industry as an employee or future self-employed contractor.

Areas of explanation include:

• an overview of the industry
• careers and occupations
• career development
• industry terminology and common building terms
• legislation, regulations and licensing
• basic construction principles
• ethics and moral obligations.
By now, you should feel confident that you know a lot more about these things.

The following is the last of the activities for this unit. Take a few minutes to complete the table, giving yourself a rating for how you see your understanding of the skills and knowledge required for each element of competency.

### Activity 15.1 Learning review
Do you have an understanding of these elements?

<table>
<thead>
<tr>
<th>Element of competency</th>
<th>Yes/No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Element 1 Understand the impact of the residential building industry</td>
<td></td>
</tr>
<tr>
<td>Element 2 Develop knowledge of building terms</td>
<td></td>
</tr>
<tr>
<td>Element 3 Identify key documents in residential building</td>
<td></td>
</tr>
<tr>
<td>Element 4 Develop knowledge of basic construction principles</td>
<td></td>
</tr>
<tr>
<td>Element 5 Use residential building industry knowledge</td>
<td></td>
</tr>
</tbody>
</table>

Now read the self-checklist on page 14. Do you feel that you have a knowledge of the industry that you didn’t have at the start of this unit? And do you believe you could now, with some confidence, operate at a basic level in an industry office?
### Activity 15.2 Reflection on progress

Make a note below of the areas of knowledge that you now feel more confident about, and also any areas that you feel you would like to (or need to) find out more about, along with your strategy for how you will do that.

<table>
<thead>
<tr>
<th>I feel confident about …</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>I would like to know more about …</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
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<td></td>
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<tr>
<td></td>
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<tr>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>I can learn more about (the above) by …</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
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<td></td>
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<tr>
<td></td>
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<tr>
<td></td>
</tr>
</tbody>
</table>

Thank you for participating in this unit. We wish you well for your future career path, no matter which direction and career you choose.
Annex A – Unit details

<table>
<thead>
<tr>
<th>Unit code and title</th>
<th>Develop residential building industry knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Descriptor</td>
<td>This unit of competency specifies the outcomes required to understand the importance and the basic operation of the residential building industry.</td>
</tr>
<tr>
<td>Employability skills</td>
<td>The following employability skills are an integral part of the delivery of this unit. They include: communication; teamwork; problem solving; initiative and enterprise; planning and organising; self-management; learning; and technology.</td>
</tr>
<tr>
<td>Pre/co-requisite units</td>
<td>Carry out basic measurement and calculations for residential buildings</td>
</tr>
<tr>
<td>Application</td>
<td>This unit supports the attainment of basic features and principles underpinning the role of non-trade workers in the residential building industry.</td>
</tr>
</tbody>
</table>

Element 1 Understand the impact of the residential building industry

1.1 Identify the size and nature of the construction industry and particularly the residential building sector, and its importance to the economy of the nation

1.2 Identify drivers of residential building activity

1.3 Identify career opportunities within the residential building industry and the conditions that apply to those occupations

1.4 Identify and use sources to research information relevant to the residential building industry

Element 2 Develop knowledge of building terms

2.1 Become familiar with common terminology used within the construction industry and particularly the residential building sector

2.2 Carry out research using printed and electronic media and document findings

2.3 Correctly use common building terms in conversations and in relevant written notes with colleagues
**Element 3 Identify key documents in residential building**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1</td>
<td>Identify <em>main documents associated with construction</em> of residential building</td>
</tr>
<tr>
<td>3.2</td>
<td>Identify the main forms of legislation, regulation and licensing in the residential building industry and sources of the documentation</td>
</tr>
<tr>
<td>3.3</td>
<td>Identify ethical expectations consistent with well respected enterprises in the industry</td>
</tr>
</tbody>
</table>

**Element 4 Develop knowledge of basic construction principles**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1</td>
<td>Demonstrate an understanding of <em>basic scientific principles relevant to physical construction</em> of residential buildings</td>
</tr>
<tr>
<td>4.2</td>
<td>Develop an understanding of how construction techniques are used to address standard problems</td>
</tr>
</tbody>
</table>

**Element 5 Use residential building industry knowledge**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1</td>
<td>Identify and use a range of opportunities to update general knowledge of the residential building industry</td>
</tr>
<tr>
<td>5.2</td>
<td>Monitor current issues of concern to the residential building industry</td>
</tr>
<tr>
<td>5.3</td>
<td>Share updated knowledge with colleagues and customers and incorporate this knowledge in day to day activities</td>
</tr>
<tr>
<td>5.4</td>
<td>Conduct day-to-day activities in accordance with legal obligations and established industry ethical standards</td>
</tr>
</tbody>
</table>
Required skills and knowledge

Essential knowledge

Understanding of:

• residential building industry terminology
• sources of information
• the role of the residential building industry in the national economy
• careers and career opportunities in the residential building sector
• basic science/engineering principles that impact on residential building design and construction
• elementary economy – growth, cycles, inflation and interest rates etc.

Essential skills

Ability to:

• communicate and determine requirements
• read
• use numbers and units of measure
• use the Internet
• be organised
• plan, research and gather information
• be part of a team when working and sharing with others
Range statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts.

| Size and nature of the construction industry may include: | • number of persons employed  
• amount of money involved  
• various sectors of the construction industry  
• types of occupations covered |
| Importance to the economy may include: | • contribution as a component of total measures  
• effects of fluctuations  
  • supply and demand  
  • demographics  
  • interest rates  
• percentage of individual’s wealth tied to built assets |
| Drivers may include: | • interest rates  
• economic activity  
• land supply  
• affordability  
• migration  
• government policy |
| Sources to research information may include: | • trade journals, newspapers, magazines  
• industry leaders, managers, professionals and tradespersons  
• manufacturer’s brochures  
• sales brochures  
• internet sites  
• display centres and display homes |
| Common terminology may include: | • names of different types of residential buildings |
| | • typical means by which size, capacity, quantity, style and general characteristics are expressed |
| | • titles, trades and/or occupations of people involved in the residential building processes |
| | • common planning and building approval terms |
| | • governance that may include approvals such as: |
| | • local government |
| | • developer |
| | • planning |
| | • environmental |
| | • flat pack construction |
| | • common construction terms, that may include: |
| | • concrete raft floors |
| | • brick build up |
| | • double brick, framed and veneer construction |
| | • roof construction types |
| | • roof coverings |
| | • solid plaster |
| | • sheet wall and ceiling linings |
| Documents associated with construction may include: | • plans and specifications |
| | • approvals |
| | • company quality policy and standards |
| | • relevant regulations, including Australian standards |
| Basic scientific principles relevant to physical construction may include: | • stress and strain |
| | • load bearing and non-load bearing |
| | • techniques to overcome sagging |
| | • properties of basic soil types |
| | • techniques to cater for wind, earth tremor, water or moisture flow |
Evidence guide

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this course.

<table>
<thead>
<tr>
<th>Critical aspects of assessment and evidence required to demonstrate this competency unit:</th>
<th>A person who demonstrates competency in this unit must be able to provide evidence of the ability to:</th>
</tr>
</thead>
</table>
|  • locate, interpret and apply information relevant to the residential building industry  
  • understand common terms, concepts and principles related to the residential building industry  
  • engage in conversations with others discussing topics relevant to the residential building industry  
  • generate brief notes on aspects of the residential building industry | |

<table>
<thead>
<tr>
<th>Access and equity considerations:</th>
<th>Reasonable adjustment may be made to meet individual learner needs</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Context of and specific resources for assessment:</th>
<th>This competency is to be assessed using standard and authorised work practices, safety requirements and environmental constraints.</th>
</tr>
</thead>
</table>
|  Assessment of essential underpinning knowledge will usually be conducted in an off-site context. Assessment is to comply with relevant regulatory or Australian standards’ requirements.  
  Resource implications for assessment include:  
  • an induction procedure and requirement  
  • realistic tasks or simulated tasks covering the mandatory task requirements  
  • relevant specifications and work instructions  
  • support materials appropriate to activity  
  • workplace instructions relating to safe work practices and addressing hazards and emergencies  
  • research resources, including industry related systems information. | |
| Reasonable adjustments for people with disabilities must be made to assessment processes where required. This could include access to modified equipment and other physical resources, and the provision of appropriate assessment support |
### Method of assessment

Assessment methods must:

- satisfy the endorsed Assessment Guidelines of the Construction, Plumbing and Services Integrated Framework Training Package
- include direct observation of tasks in real or simulated work conditions, with questioning to confirm the ability to consistently identify and correctly interpret the essential
- include underpinning knowledge required for practical application
- reinforce the integration of employability skills with workplace tasks and job roles
- confirm that competency is verified and able to be transferred to other circumstances and environments

Validity and sufficiency of evidence requires that:

- competency will need to be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
- where the assessment is part of a structured learning experience the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice. A decision on competency should only be taken at the point when the assessor has complete confidence in the person’s demonstrated ability and applied knowledge
- all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence.

Assessment processes and techniques should as far as is practical take into account the language, literacy and numeracy capacity of the candidate in relation to the competency being assessed.

Supplementary evidence of competency may be obtained from relevant authenticated documentation from third parties, such as existing supervisors, team leaders or specialist training staff.
Annex B – Learning plan

**Note:** Sessions are nominally two hours.

<table>
<thead>
<tr>
<th>Session</th>
<th>Performance criteria</th>
<th>Guide</th>
<th>Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.1</td>
<td>Course and unit preview. Section 1 – Overview of the construction Industry • Activity 1.1, 1.2, 1.3</td>
<td>Learner’s guide Computers and internet access</td>
</tr>
<tr>
<td>2</td>
<td>1.1, 1.2</td>
<td>Section 2 – Residential building • Activity 2.1, 2.2</td>
<td>Learner’s guide Computers and internet access</td>
</tr>
<tr>
<td>3</td>
<td>1.3</td>
<td>Section 3 – Careers and occupations • Activity 3.1, 3.2</td>
<td>Learner’s guide Newspapers, training or TAFE course booklets, internet</td>
</tr>
<tr>
<td>4</td>
<td>1.4</td>
<td>Section 4 – Industry information • Activity 4.1 Introduce Assessment 1</td>
<td>Learner’s guide Internet, newspapers, magazines</td>
</tr>
<tr>
<td>5</td>
<td>2.2</td>
<td>Section 5 – Industry research Continue with Assessment 1</td>
<td>Learner’s guide Internet, newspapers, magazines</td>
</tr>
<tr>
<td>6</td>
<td>2.1</td>
<td>Section 6 – Industry terminology • Activity 6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7, 6.8</td>
<td>Learner’s guide BCA, internet, newspapers, magazines</td>
</tr>
<tr>
<td>7</td>
<td>2.3</td>
<td>Section 7 – Common building terms • Activity 7.1, 7.2, 7.3, 7.4</td>
<td>Learner’s guide HB 50–2004 <em>Glossary of Building Terms</em></td>
</tr>
<tr>
<td>Session</td>
<td>Performance criteria</td>
<td>Guide</td>
<td>Resources</td>
</tr>
<tr>
<td>---------</td>
<td>----------------------</td>
<td>-------</td>
<td>-----------</td>
</tr>
</tbody>
</table>
| 8       | 3.1                  | Section 8 – Contract documents  
• Activity 8.1 | Learner’s guide  
Contract documents |
| 9       | 3.2                  | Section 9 – Legislation, regulations and licensing  
• Activity 9.1 | Learner’s guide  
Internet or library |
| 10      | 5.2                  | Section 10 – Current industry issues  
• Activity 10.1  
Introduce Assessment 2 | Learner’s guide  
Newspapers, television, industry websites |
| 11      | 4.1                  | Section 11 – Basic construction principles  
• Activity 11.1, 11.2, 11.3, 11.4, 11.5, 11.6  
Continue with Assessment 2 | Learner’s guide  
BCA, sample contract documents |
| 12      | 4.2                  | Section 12 – Common construction issues  
• Activity 12.1, 12.2  
Review progress Assessment 1 | Learner’s guide  
BCA, sample contract documents |
| 13      | 3.3                  | Section 13 – Ethical and moral obligations  
• Activity 13.1, 13.2, 13.3, 13.4  
Assessment 1 due | Learner’s guide  
Internet |
| 14      | 5.1                  | Section 14 – Opportunities and knowledge  
• Activity 14.1, 14.2, 14.3, 14.4, 14.5, 14.6  
Assessment 2 due | Learner’s guide  
Newspapers, television, industry websites |
| 15      | All                  | Section 15 – Unit summary  
Evaluation of assessments  
• Activity 15.1, 15.2 | Learner’s guide, assessment items |
Annex C – Assessment plan

As you progress through this unit, you will be asked to complete two assessments based on the topic content.

<table>
<thead>
<tr>
<th>Due</th>
<th>Assessment</th>
<th>Elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Session 13</td>
<td>Assessment 1 – Industry information resource journal</td>
<td>1, 2, 3</td>
</tr>
<tr>
<td></td>
<td>You are required to compile an industry information resource journal of current information related to the residential building industry in your state or territory. The specific requirements for the journal are provided in the actual assessment in Annex D.</td>
<td></td>
</tr>
<tr>
<td>Session 14</td>
<td>Assessment 2 – Industry issues paper</td>
<td>4, 5</td>
</tr>
<tr>
<td></td>
<td>You are required to identify one current issue that is affecting the residential industry today and write a paper on that issue (two-page maximum) and how it might be affecting the industry. A blank pro forma or template document in electronic format will be provided for you to use for your issues paper.</td>
<td></td>
</tr>
</tbody>
</table>

Individual learning and assessment needs

Learners have different learning styles and needs. Please let your lecturer know if there is anything that may have an effect on your learning.

Results and appeals

Please refer to your training institution or association website for information about the assessment process.
Annex D – Assessments
Assessment 1 – Industry information resource journal

Introduction

You are required to compile a portfolio of documents in the form of an industry information resource journal that will demonstrate your competence in identifying and using current information related to the residential building industry in your state or territory.

Sources for this information include (but are not limited to):

• trade journals, newspapers, magazines
• industry leaders, managers, professionals and tradespersons
• manufacturer’s brochures
• sales brochures
• internet sites
• display centres and display homes
• other sources as discussed during the weekly session discussions.

Requirements

The documents to be provided are an original, print-out or copy of the following.

1. Building design course information (one from university, one from TAFE).
2. Trade course information – minimum of two.
3. Residential designers’ information – minimum of two.
4. Complementary designers’ information (landscapers, pool builders, interior designers, etc) – minimum of two.
5. Your local council’s building information.
6. Residential builders’ information – minimum of four, from small to large enterprises.
7. Mortgage lenders’ information – minimum of two.
8. Residential product manufacturers’ information – minimum of four (bricks, roofing, windows, plumbing fixtures and fittings, kitchen appliances, etc).
10. Job and career information – minimum of three.
Assessment format

All documents are to be A4 in size and submitted in an appropriate file with a cover sheet for assessment. The submission must include a table of contents and all information sources must be acknowledged.

Please use the marking guide provided at Annex E, and the cover page for your assessment when submitting it.

Submission

In class during Session 13.
30009

Develop residential building industry knowledge

Assessment 1 – Industry information resource journal

Name ____________________________ Date ____________

I have received feedback on this assessment.

Signature ________________________ Date ____________

Assessor’s initials
Assessment 2 – Current issues

You are required to identify one current issue, related to construction, that is affecting the residential industry today and write a paper on that issue (three-page maximum) and how it might be affecting the industry. Sources from which these issues can be identified include (but are not limited to):

• trade journals, newspapers, magazines
• industry leaders, managers, professionals and tradespersons
• television
• internet sites.

The industry information resource journal that you produced earlier for Assessment 1 will also provide useful information for this second assessment.

Requirements

The document should be no more than three A4 pages long and typed in 11 point Arial (the same font used for this guide).

1. Once you have decided on the issue you are going to discuss in your paper, you are required to:
   1.1 state the issue
   1.2 explain how it affects, or will affect, the industry
   1.3 explain the source of the issue (how it came about)
   1.4 offer or quote a solution.

You should also include some photos, diagrams, charts or tables, etc as one appendix if you think they are relevant and can help illustrate the issue. This assessment is due for submission at the conclusion of Session 14.

Assignment format

All documents are to be A4 in size submitted in an appropriate file with a cover sheet for assessment. The submission must include a table of contents and all information sources must be acknowledged.

Please use the marking guide provided at Annex E, and the cover page for your assessment when submitting it.

Submission

In class during Session 14.
30009

Develop residential building industry knowledge

Assessment 2 – Current issues

Name ________________________________ Date ______________

I have received feedback on this assessment.

Signature ____________________________ Date ______________

Assessor’s initials
Develop residential building industry knowledge
Annex E – Marking guides
# Assessment 1 – Industry information resource journal – Marking guide

<table>
<thead>
<tr>
<th>Learner to complete</th>
<th>Assessor to complete</th>
<th>Date: / /</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name:</td>
<td>Assessor:</td>
<td></td>
</tr>
<tr>
<td>1st submission date:</td>
<td>Assessment: (circle)</td>
<td>2nd submission due date: (if required) / /</td>
</tr>
<tr>
<td></td>
<td>Competent</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Resubmit</td>
<td></td>
</tr>
</tbody>
</table>

**Due: Session 13**

**Instructions for learners**

Tick the boxes on the left once you are happy with that aspect of your assessment and before you submit it.

**Instructions for assessors**

Place a cross in the boxes on the right only if the item is not acceptable or not competent.

This assessment will assess Elements 1, 2 and 3.

---

- Document folder submitted on time
- The requested documents have been submitted:
  - Design course information
  - Trade course information
  - Residential designers’ information
  - Complementary designers’ information
  - Your local council’s building information
  - WA residential builders’ information
  - WA mortgage lenders’ information
  - Residential product manufacturers’ information
  - Industry association information
  - Job and career information
- Documents comply with the required submission format
- A table of contents page acknowledging information sources is provided
- Appropriate title page and folder submitted
Note: Your assessor may provide specific notes on your submission as an alternative to completing the feedback section below.

Feedback: ...........................................................................................................................................
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Assessment successfully completed: Yes / No
**Assessment 2 – Industry issues paper – Marking guide**

<table>
<thead>
<tr>
<th>Learner to complete</th>
<th>Assessor to complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name:</td>
<td>Assessor:</td>
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<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>1st submission date:</td>
<td>Assessment: (circle)</td>
</tr>
<tr>
<td>/ /</td>
<td>Competent</td>
</tr>
<tr>
<td></td>
<td>Resubmit</td>
</tr>
</tbody>
</table>

**Due: Session 14**

**Instructions for learners**

Tick the boxes on the left once you are happy with that aspect of your assessment and before you submit it.

**Instructions for assessors**

Place a cross in the boxes on the right only if the item is not acceptable or not competent.

This assessment will assess Elements 4 and 5.

- Document submitted on time ............................................................
- The issue has been properly identified and stated ...............................
- The effects of the issue are clearly explained ....................................
- The source of the issue is acknowledged ...........................................
- A viable solution has been proposed ..................................................
- Appropriate text is written within the content of the document ..........
- Spelling and grammar are correct .....................................................
- Appropriate terminology is demonstrated ........................................
- Appropriate photos or illustrations are included as an appendix ........
- Documents comply with the required submission format .....................

Note: Your assessor may provide specific notes on your submission as an alternative to completing the feedback section below.

Feedback: ........................................................................................................................................
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Assessment successfully completed: Yes / No
DEVELOP RESIDENTIAL BUILDING INDUSTRY KNOWLEDGE
CERTIFICATE II IN BUILDING AND CONSTRUCTION
(PATHWAY – PARAPROFESSIONAL)
30009

LEARNER’S GUIDE

DESCRIPTION
This learner’s guide will help you to apply relevant industry knowledge to the services you could provide to the residential building industry as an employee or self-employed contractor. It contains a mix of content and hands-on activities that support the unit 30009 Develop residential building industry knowledge from Certificate II in Building and Construction (Pathway – Paraprofessional). The course, and this guide, focus on the skills and knowledge required to get your career started as a paraprofessional in the residential building industry.

The topics covered in this guide include:

• an overview of the building and construction industry in Australia
• career paths and opportunities in the industry
• terminology commonly used in building and construction
• legislation, regulations and licensing that applies in the residential building industry
• construction techniques used in residential building.

You will also learn about current issues relevant to the industry. Assessment activities are also included.

EDITION
Edition 1, 2012
Unit and course codes updated 2014

COURSE/QUALIFICATION
Certificate II in Building and Construction (Pathway – Paraprofessional)

UNIT
30009 Develop residential building industry knowledge

RELATED PRODUCTS
This resource is one of a series that covers all 12 units of the Certificate II in Building and Construction (Pathway – Paraprofessional) qualification. Please refer to our product catalogue for more information.