



Government of **Western Australia**
Department of **Training**
and **Workforce Development**



central
INSTITUTE OF TECHNOLOGY

READ AND INTERPRET PLANS AND SPECIFICATIONS CERTIFICATE II IN BUILDING AND CONSTRUCTION (PATHWAY – PARAPROFESSIONAL) CPCCCM2001A

LEARNER'S GUIDE

BUILDING AND CONSTRUCTION



BC1934

Read and interpret plans and specifications

CPCCCM2001A

Learner's guide

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This resource contains Units of Competency from the CPC08 Construction, Plumbing and Services Training Package – CPCCCM2001A *Read and interpret plans and specifications*
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Welcome

This guide takes you through the process of learning how to find and interpret information in typical plans and specifications for single-dwelling residential construction projects.

Areas of explanation include:

- the types of drawings used and the kinds of information they show
- title panels and the kind of information they show
- dimensions – how they are shown and how to read them
- paper sizes and common scales that are used
- abbreviations and symbols found on drawings
- written specifications.

Qualification overview

This unit of competency, CPCCCM2001A *Read and interpret plans and specifications*, forms part of Certificate II in Building and Construction (Pathway – Paraprofessional) and is aimed at people who are considering a paraprofessional career in the residential building industry (as opposed to a career in 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 or 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 read and interpret plans and specifications relevant to construction operations in the residential sector of the building industry. It does not cover the commercial sector of the industry.

It includes the identification of types of plans and drawings and their functions, the recognition of commonly used symbols and abbreviations, the identification of key features, dimensions and specifications on drawings, the comprehension of written job specifications and the recognition of document status and amendment detail.

Competence in this unit will be demonstrated by successful completion of two written assessments – a written theory assessment and a written plan-reading practical assessment.

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.

| | |
|-----------------------------|---|
| Unit title | Read and interpret plans and specifications |
| Descriptor | This unit of competency specifies the outcomes required to read and interpret plans and specifications relevant to construction operations. It includes the identification of types of plans and drawings and their functions, the recognition of commonly used symbols and abbreviations, the identification of key features and specifications on a site plan, the comprehension of written job specifications and the recognition of document status and amendment detail. |
| National code | CPCCCM2001A |
| Employability skills | This unit contains employability skills. |
| Prerequisite units | Nil |
| Application | This unit of competency supports achievement of basic reading and interpretation of plans and specifications commonly used in the construction industry. |



| |
|--|
| Element 1 Identify types of drawings and their functions. |
| 1.1 Main types of plans and drawings used in the construction sector of the industry are identified. |
| 1.2 Key features and functions of each type of drawing are identified. |
| 1.3 Quality requirements of company operations are recognised and adhered to. |
| 1.4 Environmental requirements and controls are identified from job plans, specifications and environmental plan. |
| Element 2 Recognise amendments. |
| 2.1 Title panel of project documentation is checked to verify latest amendments to drawing. |
| 2.2 Amendments to specifications are checked to ensure currency of information and conveyed to others where appropriate. |
| Element 3 Recognise commonly used symbols and abbreviations. |
| 3.1 Construction symbols and abbreviations are recognised. |
| 3.2 Legend is located on project drawings, and symbols and abbreviations are correctly interpreted. |
| Element 4 Locate and identify key features on a site plan. |
| 4.1 Orientation of the plan with the site is achieved. |
| 4.2 Key features of the site are identified and located. |
| 4.3 Access to site is gained and services, main features, contours and datum are identified. |
| Element 5 Identify project requirements. |
| 5.1 Dimensions for project and nominated locations are identified. |
| 5.2 Construction types and dimensions for nominated locations are identified. |
| 5.3 Environmental controls and locations are identified. |
| 5.4 Location, dimensions and tolerances for ancillary works are identified. |
| Element 6 Read and interpret job specifications. |
| 6.1 Job specifications are identified from drawings, notes and descriptions. |
| 6.2 Standards of work, finishes and tolerances are identified from the project specifications. |
| 6.3 Material attributes are identified from specifications. |



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 the following resources:

- sets of drawings for one-storey or two-storey, single-dwelling houses
- written specifications for one-storey or two-storey, single-dwelling houses.

You will need to provide the following:

- a scale rule with 1:5, 1:10, 1:20, 1:50, 1:100 and 1:200 scales
- writing and drawing tools
- paper
- a USB thumb drive.

Recommended

The resource 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.

| Resource | Section | Publisher |
|---|---------|--|
| Earnshaw, K. 1988. Carpentry and Joinery: Plan Reading. <i>Basic Training Manual</i> . 2nd edn. Vol 14(10). | 1–6 | Australian Government Publishing Service, Canberra |



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', review the material in that section and/or discuss it with your lecturer or other learners in your group.

| CPCCCM2001A Read and interpret plans and specifications | I understand | |
|--|--------------|-----------|
| | Easily | With help |
| Element 1 Identify types of drawings and their functions. | | |
| 1.1 Main types of plans and drawings used in the construction sector of the industry are identified. | | |
| 1.2 Key features and functions of each type of drawing are identified. | | |
| 1.3 Quality requirements of company operations are recognised and adhered to. | | |
| 1.4 Environmental requirements and controls are identified from job plans, specifications and environmental plan. | | |
| Element 2 Recognise amendments. | | |
| 2.1 Title panel of project documentation is checked to verify latest amendments to drawing. | | |
| 2.2 Amendments to specifications are checked to ensure currency of information and conveyed to others where appropriate. | | |
| Element 3 Recognise commonly used symbols and abbreviations. | | |
| 3.1 Construction symbols and abbreviations are recognised. | | |
| 3.2 Legend is located on project drawings, and symbols and abbreviations are correctly interpreted. | | |



| Element 4 Locate and identify key features on a site plan. | Easily | With help |
|--|---------------|------------------|
| 4.1 Orientation of the plan with the site is achieved. | | |
| 4.2 Key features of the site are identified and located. | | |
| 4.3 Access to site is gained and services, main features, contours and datum are identified. | | |
| Element 5 Identify project requirements. | Easily | With help |
| 5.1 Dimensions for project and nominated locations are identified. | | |
| 5.2 Construction types and dimensions for nominated locations are identified. | | |
| 5.3 Environmental controls and locations are identified. | | |
| 5.4 Location, dimensions and tolerances for ancillary works are identified. | | |
| Element 6 Read and interpret job specifications. | Easily | With help |
| 6.1 Job specifications are identified from drawings, notes and descriptions. | | |
| 6.2 Standards of work, finishes and tolerances are identified from the project specifications. | | |
| 6.3 Material attributes are identified from specifications. | | |



About the icons

Note that not all icons may appear in this guide.



Performance criteria

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.



Activity

This icon indicates that there is an activity for you to do.



Computer-based activity

This icon indicates that there is an activity for you to do on the computer.



Discussion

This icon indicates that there will be a discussion, which could be with a partner, a group or the whole class.



Research

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.



Case study

This icon indicates that there is a case study or scenario to read.



Think

This icon indicates that you should stop and think for a moment about the point being made or the question being asked.



Assessment task

This icon indicates that an activity or task is part of your assessment.





Section 1 – Drawing types

Introduction

A complex project may require hundreds of sheets of drawings, while a simple building project like a pergola may need just one sheet.

Project drawings form an important part of the project contract between the client and the main contractor and are therefore legal documents.

During construction the building should be built exactly as shown on the drawings, unless there is a written instruction issued by the architect or client to the builder to make a change.

When you've completed Section 1, you'll have some of the basic skills needed to interpret the information found in construction drawings.



Performance criteria

- 1.1 Main types of **plans and drawings** used in the construction sector of the industry are identified.
- 1.2 **Key features** and functions of each type of drawing are identified.
- 1.3 **Quality requirements** of company operations are recognised and adhered to.
- 1.4 **Environmental requirements** and controls are identified from job plans, specifications and environmental plan.
- 3.2 Legend is located on project drawings, and symbols and abbreviations are correctly interpreted.
- 4.1 Orientation of the plan with the site is achieved.
- 5.3 Environmental controls and locations are identified.

Note: For this section you will need to look at a set of house drawings supplied by your lecturer. This guide will refer to these drawings as the class set.



Activity 1.1 Project participants

With a partner, discuss the following three participants in a typical construction project. Try to describe your understanding of who each one is and how they might use the project plans.

The client

The main contractor

Other contractors



Types of drawings

There are many types of construction drawings. These drawings are all necessary for a building to be built correctly.



Activity 1.2 Importance of drawings

Complete these sentences to explain the importance of construction drawings.

Construction drawings are necessary so that:

- the _____ can translate the client's ideas into a definite, practical representation of what he or she wants
- the _____ can ensure that his or her ideas have been correctly interpreted by the designer
- the _____ can give a firm estimate of what the building will cost
- the _____ and sub-_____ know exactly where and how to construct the building.

The main types of drawings are architectural, engineering, electrical, hydraulic and mechanical.



Activity 1.3 Main types of drawings

Fill in the blanks below to name and describe the main types of construction drawings. Choose from **architectural**, **engineering**, **electrical**, **hydraulic** and **mechanical**.

_____ So called because they're drawn up by the architect. These show the size of the building, the layout, some details of materials to use, where windows and doors are, etc. They are the main drawings and the most _____ ones.

_____ These show details of plumbing fixtures such as _____ and _____.



_____ These show details of special mechanical equipment which may be in the building such as _____ and _____.

_____ These show details of electrical fittings such as _____ and _____.

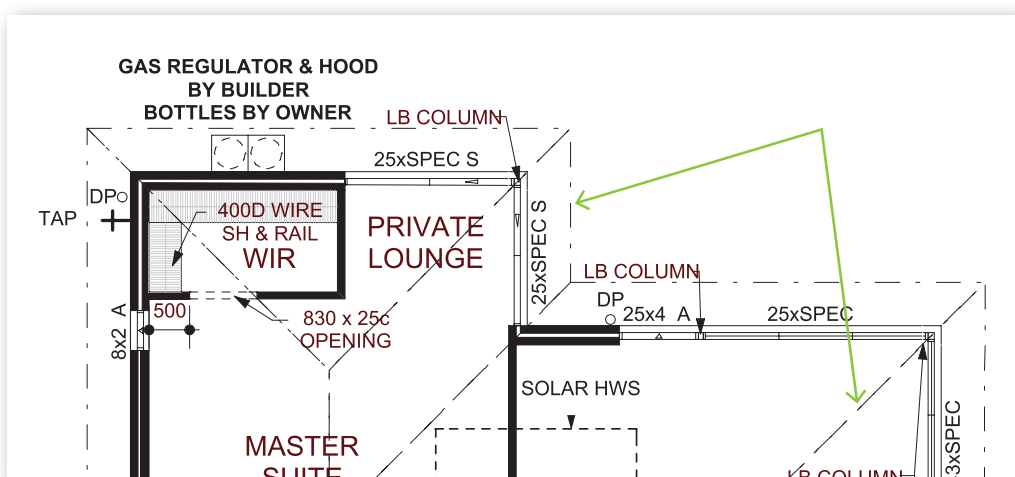
_____ These are concerned with the strength of the building. They show details such as the size of concrete members or the size of reinforcing steel and where it should be used.



Not all construction projects require all of these drawings; it depends on the size and complexity of the building. Look back at the drawing types you named in Activity 1.3. Which ones can you see in the class set of drawings?

Project drawings can be created by a range of people, depending on the project. These include an architect, a building designer, a drafts person, a builder or even the client. To keep things simple, the terms ‘designer’ and ‘draftsperson’ will be used most in this guide to indicate the person who draws the plans.

Drawings, especially in the residential sector of the industry, don’t show *all* the details of the building. For example, the part plan of a house in Figure 1.1 shows the outline of the roof (marked with an arrow) so that the roof carpenter knows that it’s a ‘hip’ roof.



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Figure 1.1: Part of a floor plan.



However, the plan doesn't show any details of how the roof framing should be constructed. That's because there are Australian Standards® that specify how roof framing should be constructed (or how trusses should be made and erected if they are used instead).



Also, it's assumed that the carpenters constructing the roof framing will be competent tradespeople who know what they're doing. The written specifications for the job will also state which standard is to be followed for each part of the build.

There are also 'standard' ways of doing things, especially in the housing sector. For example, if a metal fascia is specified to be fitted at the gutter line, detailed instructions or drawings aren't necessary, because there's a standard way of doing that and the contractor will know how.

Note: The above applies more to low-to-medium-cost housing. At the high end (more expensive part) of the housing industry and in the commercial/industrial sector, where the construction isn't so standard, the architect may need to provide more details on what's required.



Views

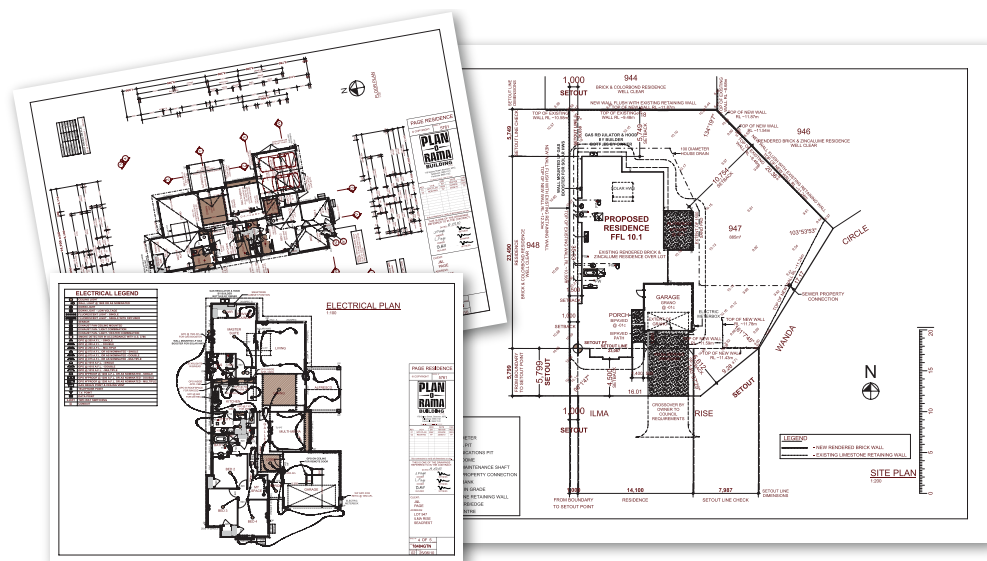
Construction drawings belong to one of four types of view: – plan, elevation, section and detail. This refers to the point a drawing seems to be viewed and drawn from.

Plan view – a view from above, looking down

A plan view shows the layout of the proposed building or the site. It can show the length and width of things (for example, rooms) and where things are positioned.

A plan view could be a plan of:

- the block of land the building is to be built on – a site plan
- just the building itself – a floor plan
- specific parts of the building (that might also be shown on a floor plan); for example, an electrical plan showing positions of lights etc.



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Site plans

A site plan shows the entire block of land, or at least the part of the block where the building will be.

Site plans are drawn at a small scale so that they can show the entire block of land (or at least the part of the block where the building will be). Most importantly, they show where the building is to be located on the block.

Site plans also typically show things like driveways, fences, clothes lines, paths and retaining walls. These things are called ‘ancillary’ works (that is, additional to the main building works and usually of a relatively minor nature). In some cases, the ancillary works are not included in the building contract; the owner organises them later.



Figure 1.2 is a site plan for a residential project. You'll see that lots of parts of it are numbered. A description of these numbered features is provided after the plan. Find each numbered feature on the site plan, then read the information about it.

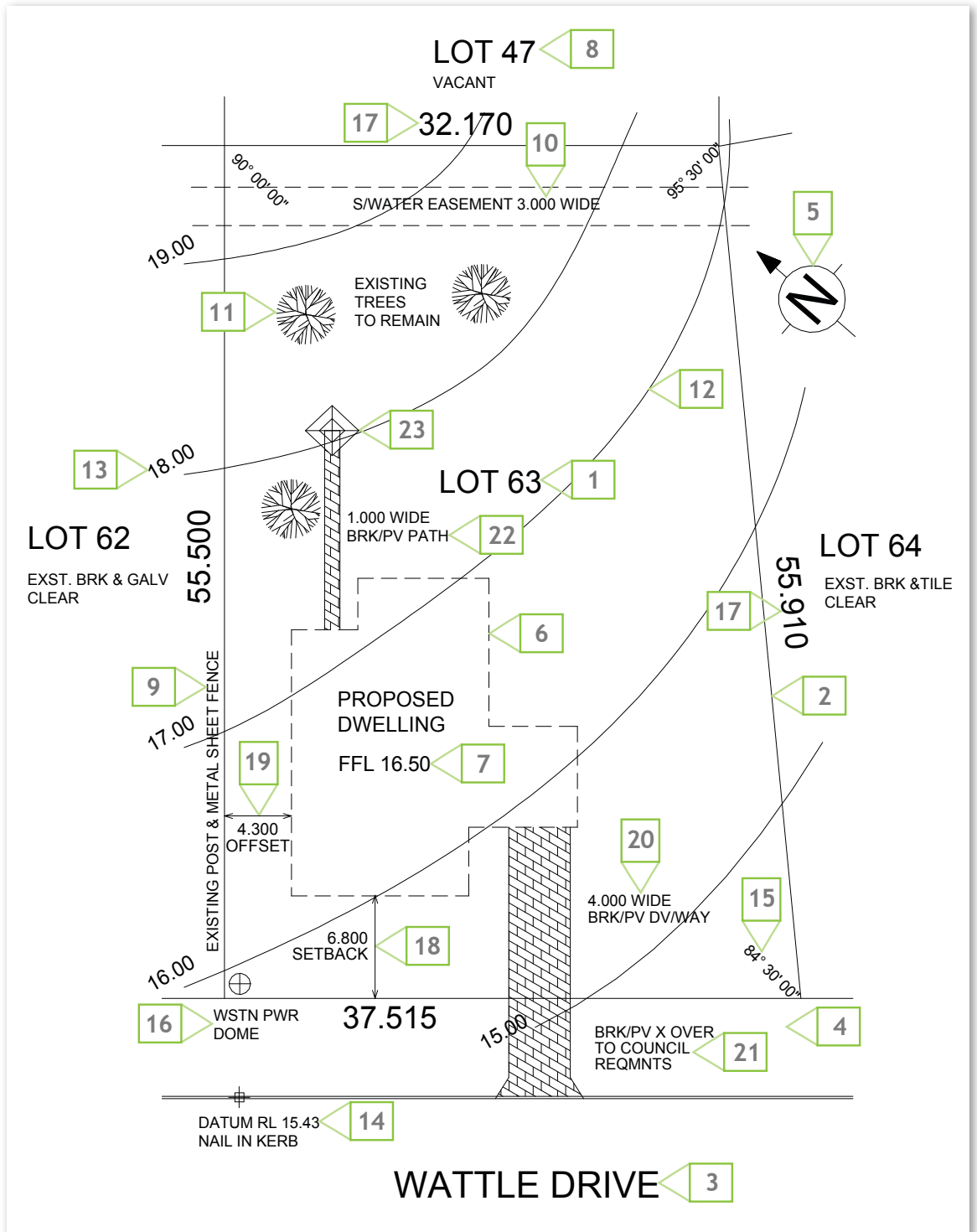


Figure 1.2: A site plan for a proposed dwelling in Wattle Drive.



1. **Block identification.** When land is subdivided, each block is given a lot number. The street number is allocated later.
2. **Boundary.** The boundary is the imaginary line that defines the block of land. At each corner is a small wooden peg with the numbers of the adjacent lots stamped onto a metal plate. If a boundary changes direction, a peg is located at that point too.
3. **Road identification.** The name of the road shows where the front of the block is.
4. **Verge.** The verge is the area of land between the block and the road. It is not part of the block and must not be built on (apart from a crossover) or damaged in any way. It usually has services running beneath it (water, telephone, etc).
5. **North point.** The direction of north is shown to assist in orientating the drawing with the block when on-site.
6. **Proposed building.** The location of the proposed house is shown, usually just as an outline.
7. **Finished floor level.** The level of the finished floor of the house is given.
8. **Adjacent properties.** The adjacent lot numbers are shown, and sometimes indications of existing structures are given.
9. **Existing fences.** Any existing boundary fences should be shown.
10. **Easement.** An easement is a part of the land over which another party has some sort of legal right. In this case, a strip near the rear of the block is an easement for a council stormwater line to be laid. It still belongs to the landowner but the council has the right to lay and maintain a stormwater pipe there, so no structure is allowed to be built over this area.
11. **Existing trees.** If there are any features on the block that are to be left undisturbed they are clearly indicated.
12. **Contour lines.** These are imaginary level lines that indicate the shape of the land (you might have seen these on maps.) In this site plan, they indicate that the land slopes down from the north corner to the south corner.
13. **Contour level.** This indicates the 'reduced level' of the contour (reduced levels are explained in Section 3 *Dimensions* of this guide). In this case, they are shown at one-metre intervals, but this varies depending on the steepness of the land.
14. **Datum.** This is a point on or near the block that all heights for the project are measured from. It is explained more fully in Section 3.
15. **Angle of boundary intersection.** This indicates at what angle the boundaries meet. It is not always shown, especially if the block has square corners.



16. **Location of power connection.** This indicates to the electrician where the electrical connection will be made. In this case, the block has underground power, but if overhead lines pass the block, the nearest power pole may be shown.
17. **Boundary length.** This indicates the length of each boundary.
18. **Setback.** This is the distance from the front boundary to the nearest part of the building. A minimum distance for this is set by the local authority (council) and varies depending on the zoning of the land.
19. **Offset.** Similar to the setback, the offset indicates how far from the side boundary the building is to be. There are by-laws regulating the minimum distance for this, mainly to minimise the spread of fire.
20. **Driveway.** This indicates where and how wide the driveway should be.
21. **Crossover.** This is the continuation of the driveway across the verge.
22. **Path.** Any paving included in the contract is shown.
23. **Clothes hoist.** The position of the clothes hoist is indicated.



Floor plans

Floor plans show the layout of the house, literally a 'plan of the floor'.



Activity 1.4 Floor plans

Look at the **floor plan** in the class set and list 10 different types of things that this drawing tells us. An example has been provided.

Example: Position of the fixtures in the kitchen

1.

2.

3.

4.

5.

6.

7.

8.

9.

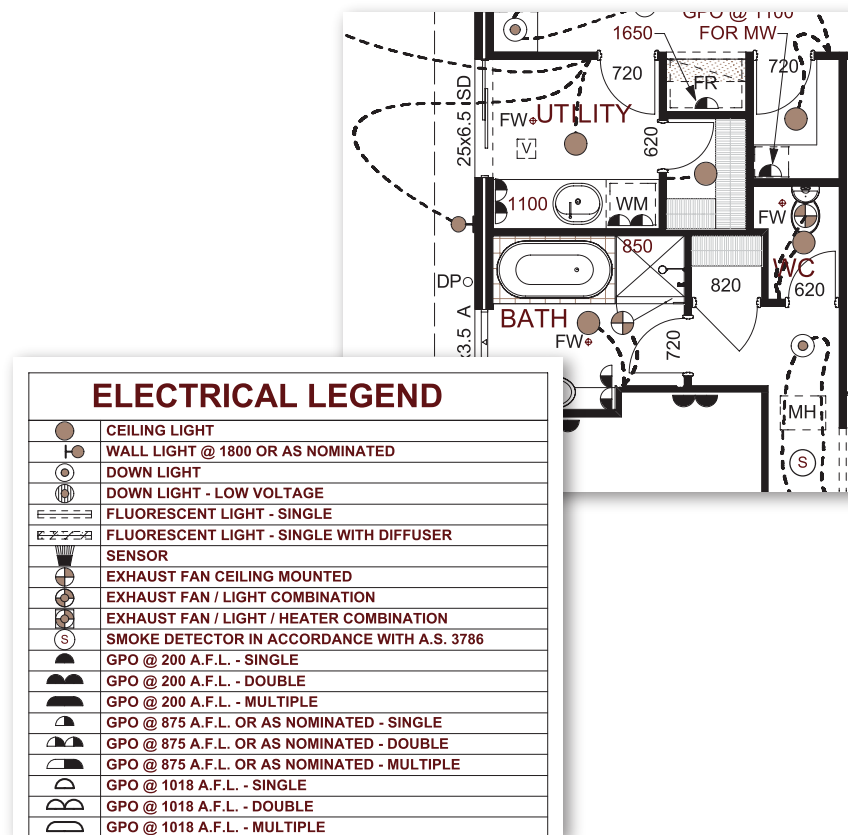
10.



Electrical plans

Most sets of house drawings have a separate electrical plan. This is because if all the information needed for the electrical layout was on the main floor plan, it would be too cluttered.

Figure 1.3 shows part of an electrical plan and its legend. There are some strange-looking symbols on it – circles, semi-circles, etc. What these represent is shown in the legend, which will be somewhere on the drawing.



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Figure 1.3: Part of an electrical plan and its legend.



What do you think the curving dashed lines on the electrical plan represent? What are they telling the electrician?



Activity 1.5 Electrical plan

Look at the electrical plan in the class set and list five different types of things that this drawing tells us. An example has been provided.

Example: Exhaust fans

1.

2.

3.

4.

5.

Elevation – a view from the side

An elevation shows the proposed building as viewed by someone standing on the ground, looking straight at the building. Usually an elevation drawing is done for each side of the building, so for a typical house there will be four, but a hexagonal house would require six elevations.

They are often labelled 'North elevation', 'West elevation', etc. Alternatively they can be labelled 'Elevation 1', 'Elevation 2', or 'Elevation A', 'Elevation B', and so on. Drawing offices, where plans are drafted, have their own standard procedures which include things like how elevations are to be named and labelled. Employees are required to follow these procedures to ensure clear quality drawings are produced, to company standards.

Whichever way they are labelled, the same labelling is shown on the floor plan (this is known as 'referencing').



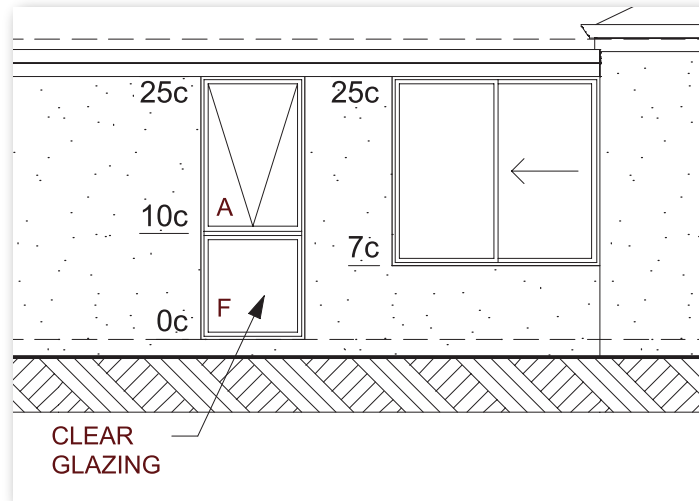
Activity 1.6 Labelling

How are the elevations in the class set labelled? _____

Find the corresponding labelling on the floor plan. Which elevation shows the front door?



Elevations can show things that can't be shown in plan view; for example, the height of the windows and how far the sills are from the floor. This would be difficult to show clearly on the floor plan.



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Figure 1.4: Part of an elevation.



Activity 1.7 Elevations

Look at the elevations in the class set and list five different types of things that these drawings tell us.

1.

2.

3.

4.

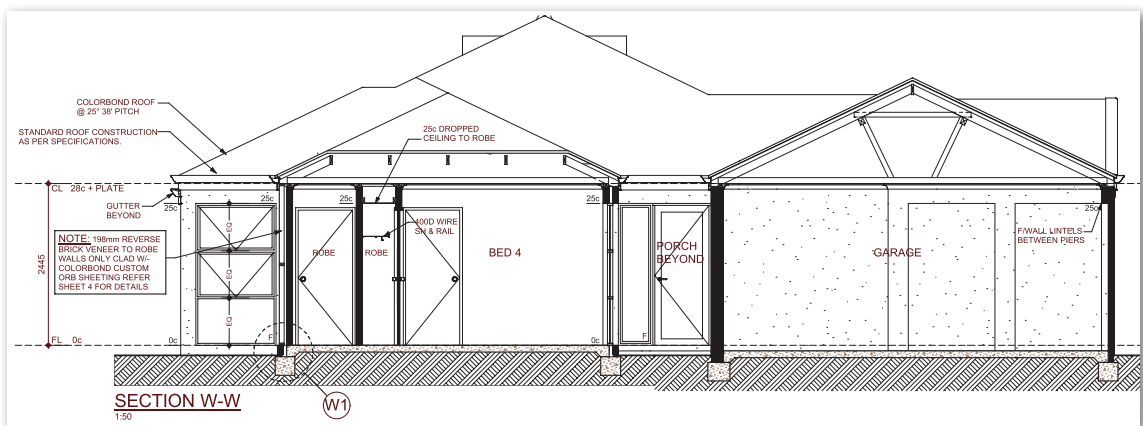
5.



Section – a slice through the building


A section shows a view of the building as though it has been sliced through with a giant chainsaw so that the inside of the building is exposed, including the inside of things like walls, door frames and roof members. This helps the builder and contractors know how parts of the building go together. One floor plan may have several section views related to it so that various features inside the building can be shown.

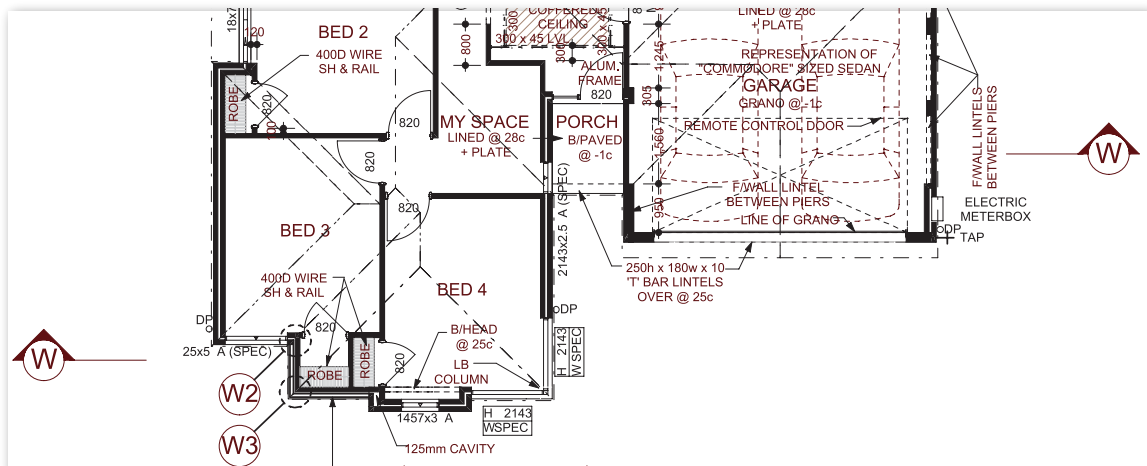
Sections are usually labelled ‘A-A’, ‘B-B’ and so on, indicating each end of the ‘slice’. The floor plan shows where each ‘slice’ comes from. The section shown in Figure 1.5 is called ‘W-W’.



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Figure 1.5: Section W-W.

The floor plan is marked with the symbols  to show that the section is taken through bedrooms 3 and 4 and the garage. The two W symbols are offset, to show that the section was not taken in a straight line through the house.



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Figure 1.6: Part of a floor plan showing the location of Section W-W.

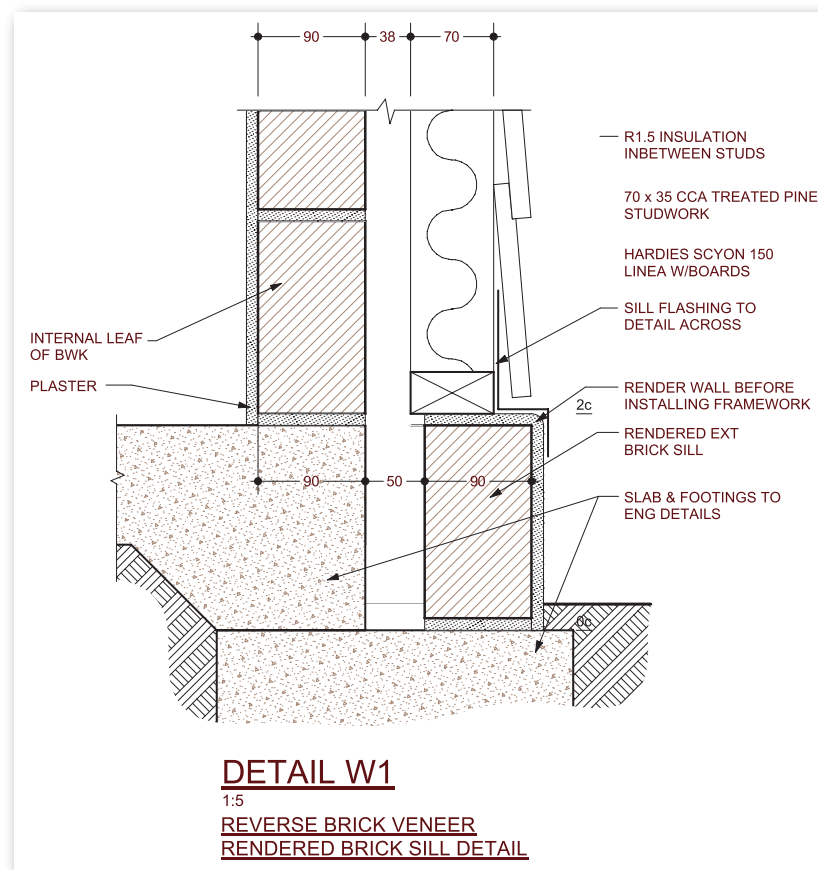


In your class set, have a look at the sheet of drawings showing sections. Choose one section that cuts through some rooms.

Which rooms does it show? Find where this section is indicated on the floor plan.

Detail – a close-up view

A detail is a view that shows important details of certain parts of the building, hence its name. Details are drawn at a large scale so that the builder can see exactly how that part of the job is to be done.



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Figure 1.7: Detail drawing showing how the wall, floor slab and footing are to be built in a certain part of the house.



Can you see what this detail, W1, applies to in the house? (Hint: look at Figure 1.5: Section W-W.)



Environmental management

An environmental management plan may be required for a project, depending on the type of project and where it is located. Environmental management includes the following controls:

- Land disturbance – for example management of stormwater, dust control and erosion.
- Noise and vibration – for example working only during prescribed site operating hours and monitoring noise and vibration levels of vehicles and equipment.
- Waste management – for example minimising waste, sorting waste into the appropriate bins and leaving the site clean and tidy at the end of each day.
- Hazardous goods – for example ensuring material safety data sheets (MSDS) are available and ensuring correct storage procedures are followed.

An environmental management plan can be either a separate written document, included in the specifications, or depicted as a plan similar to the project site plan. Everyone involved in a project needs to follow the environmental management plan.



Activity 1.8 Environmental management

1. Think of and write down three more environmental controls that might apply to a building project in your area.
 - a _____
 - b _____
 - c _____
2. List two factors you think would be considered in deciding where to locate the skip bin for construction waste for a residential building project.
 - a _____
 - b _____





Section 2 – Title panels

Introduction

In this section we'll look at title panels, or title blocks – an essential part of all construction drawings.



Performance criteria

- 1.3 **Quality requirements** of company operations are recognised and adhered to.
- 2.1 Title panel of **project documentation** is checked to verify latest amendments to drawing.
- 2.2 Amendments to **specifications** are checked to ensure currency of **information** and conveyed to others where appropriate.

Title Panels

A title panel (sometimes called a title block) is found on all drawings. It identifies which project the drawing is for and also gives some specific information about that particular drawing sheet. The title panel can be found at the bottom or the side (usually the right-hand side) of the drawing sheet.

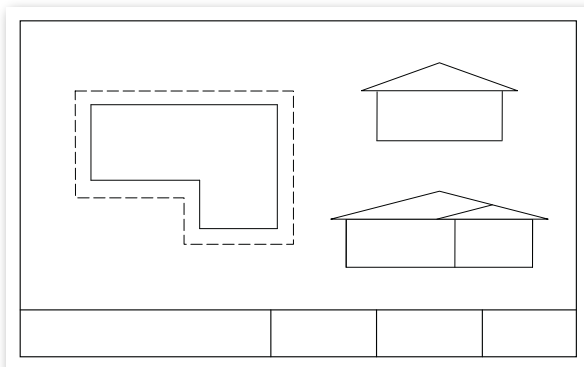


Figure 2.1: Title panel at the bottom of the sheet.

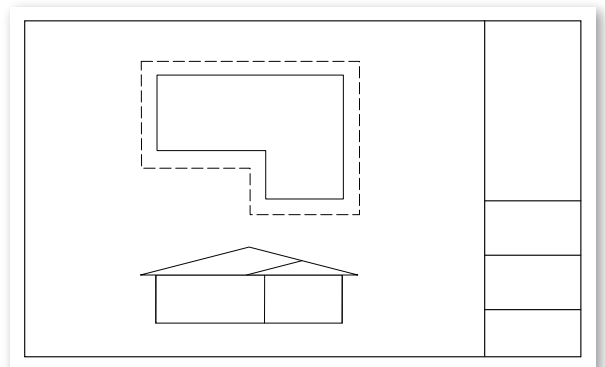


Figure 2.2: Title panel at the right-hand side of the sheet.

Where the title panel is located and what it looks like are decided by the drafting or architectural company. They will usually incorporate company styles, colours and logo. Employees creating drawings will be required to follow company procedures by inserting and completing the title block correctly.



| | | |
|--|---|---------------------------------------|
| | Site address: LOT 437, SOUTH ST, MARYVILLE WA 6 | |
| | Client: JM & KL JOHNSON 3 | |
| | Project # 2012/15 4 | Project name: JOHNSON RESIDENCE |
| | Builder: HOTSHOT HOMES 7 | 10 |
| | Drawn by: MW 5 | Date: July 2011 8 |
| | AMENDMENTS: 5/10/2011 Window added to study 8/11/2011 Bed 3 robe deleted 9 | |
| | Title: FLOOR PLAN 11 | Scale: 1:100 2 |
| | Drawing # 3 OF 7 1 | |

Figure 2.3: A completed title panel.



Activity 2.1a Parts of a title panel

Have a close look at the information in the title panel in Figure 2.3. Write the numbers from the title panel into the table below to indicate what each part of the title panel is telling you. An example has been provided.

| | |
|----------|---|
| 4 | The project number |
| | The name of the job or project |
| | The name of the person or company who will be constructing the building |
| | Where the building is to be built |
| | The number of this drawing and how many there are in the set |
| | What is shown on this drawing |
| | The scale of this drawing (on some drawings there may be some views at one scale and some at another) |
| | The date this drawing was originally drawn |
| | Who the building is being built for – the person, company or organisation who has commissioned the building |
| | The name of the person who drafted the drawing (sometimes only their initials) |
| | The date and details of any amendments made to the project as it progresses |



Amendments

An amendment is a change to a project that is decided after the drawings have been finalised. Amendments are sometimes called revisions. These changes could happen because the client requests them (for example, the client may want an extra window in the study) or because the builder realises something will work better if it's done slightly differently. Either way, they need to be shown on paper so that everyone knows about them, they are constructed correctly and there are no arguments later. So obviously it is important to use the latest version of the plans.

If this means that the building will vary from the way it was shown in the original contract documents, a written instruction will be issued by the architect/client and, if necessary, the drawings will be amended (changed) and re-issued.



Activity 2.1b Parts of a title panel – amendments

Have another look at the title panel in Figure 2.3 and answer the following questions.

1. How many amendments have been made to the drawing?

2. What date/s did this/these occur?

3. What was amended?



On a very large project (such as the Sydney Opera House), there are literally thousands of drawings required and it is a full-time job for a site clerk to ensure that everyone receives up-to-date drawings to work from.

Old, out-of-date drawings should be stamped and stored rather than destroyed, in case there is any dispute at a later date.



Notes panel

Some drawings have a 'Notes' as well as a title panel. The information in this panel is important, and must not be overlooked.

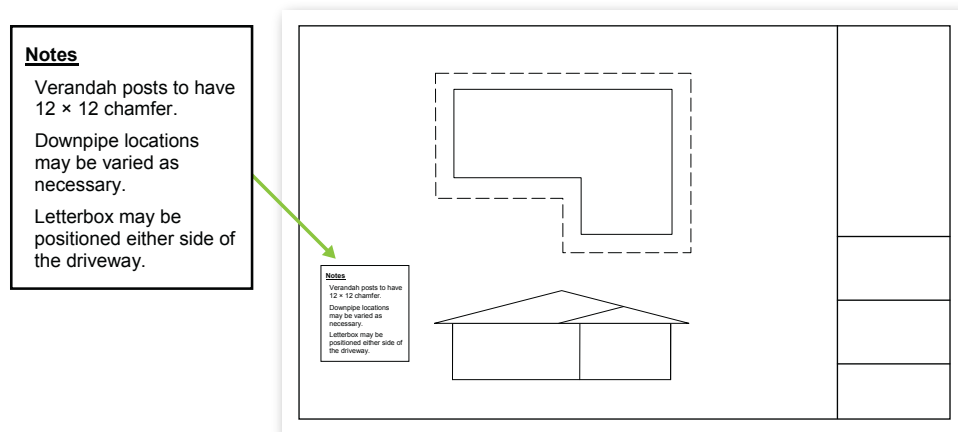


Figure 2.4: A simple drawing sheet with a notes panel.



Activity 2.2 Finding information in a title panel

Look at the title panel of the floor plan in the class set and answer the following questions.

| | |
|---|--|
| 1. What is the name of the project? | |
| 2. Who is the client? | |
| 3. What is the job address? | |
| 4. Who designed the building? | |
| 5. When was it designed? | |
| 6. Who was the draftsman? | |
| 7. What number sheet is this, and how many sheets are there in total? | |
| 8. What number revision is this? | |
| 9. What is the date of the latest revision? | |
| 10. How do we know that this is the most up-to-date floor plan drawing for the project? | |



Activity 2.3 Communicating changes

As previously outlined, amendments could happen because a client requests them (for example, the client may want an extra window in the study), or the builder realises something will work better if it's done slightly differently. In these cases, how would you communicate using verbal and non-verbal communication that is appropriate to cultural differences?



Section 3 – Dimensions

Introduction

Dimensions are a very important part of construction drawings. Without them, no-one would know what size anything should be. In this section, we'll look at some of the different types of dimensions and how they are shown in drawings.



Performance criteria

- 5.1 Dimensions for project and nominated locations are identified.
- 5.2 Construction types and dimensions for nominated locations are identified.

A good designer or draftsman will make sure that a drawing has all the information needed about the length, width and height of everything that is to be built.

Length and width are usually indicated with rows of 'dimension lines' that align with the various features of the drawing. Alternatively, there might be a note near the feature – for example, '830 wide × full height opening'.



Units and terms

In Australia, the metric system is used for all construction dimensions. Dimensions on drawings are shown either as millimetres or as metres, although the suffixes for these (mm or m) are rarely shown. This doesn't cause confusion, as it should be obvious which is meant – a bedroom shown as 3200 wide is not going to be 3200 metres!

Centimetres aren't used in plans, with the exception that a tree may be shown on the site plan as '40 cm girth'. (It may be a requirement of the contract that some existing trees on the block are to be left untouched.)

Dimensions in millimetres can be shown with or without a thousands separator, such as a comma or space. For example 3200, 3 200 or 3,200 can be used.

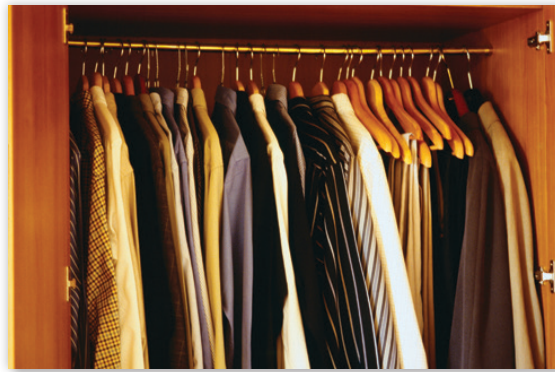
Metres are shown with a decimal point. They may show one, two or three decimal places. For example, the width of the building block may be shown on the site plan as 35.0, 35.00 or 35.000 (which all mean the same thing).



Occasionally other ways of showing sizes may be used. For example, windows in a brick building can be shown as brick courses high \times bricks wide, such as 12 c \times 4.5. This will make perfect sense to a bricklayer (and to you when you're more familiar with the jargon used in the industry).

'Length', 'width' and 'height' are terms used as usual, but the term 'depth' can have a different meaning when used with building sizes. It can mean the distance from the front to the back of something. For example, a block of land that measures 35.0 m by 55.0 m would be described as 35.0 wide by 55.0 deep, although we would also say that the side boundary is 55.0 long.

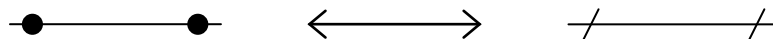
Depth is also used to describe fitments such as cupboards and wardrobes – a 600 deep cupboard indicates that it is 600 mm from front to back.



Representing dimensions

At first glance, the rows of dimensions on the floor plan of a house may look confusing. Look at Figure 3.1. To make the dimensions easier to find and read, the draftsperson has labelled some of them. Buildings with a simpler layout may show just the dimensions without the labels. If you're not sure which dimension a wall lines up with, use a ruler or other straight edge to make it easier to check.

Note that the dimension style used in Figure 3.1 uses large dots as the terminators of a dimension (to show where it starts and stops). Other drawings might use arrows or slashes as terminators, as shown here.





Activity 3.1 Dimensions

Complete the following information about the dimensions in Figure 3.1.

1. The outer row (14 100 o/all) shows the overall width of the house. What does the next row in (starting with 500) show?

2. The next row (starting with 230) shows the thickness of the outer wall, the width of the walk-in robe (_____), the thickness of the inner wall (_____) and so on.
(Occasionally, a dimension is shown *inside* the building, such as the 500 near the ensuite doorway.)
3. In the master suite, what does 830 × 25 c mean?

4. What does DP mean?

5. In the ensuite, what does FW mean?

6. Does the third row of dimensions (starting with 230) add up to the 4890 in the second row?

7. What should you do if a row of dimensions doesn't add up?

8. What does the 820 in the master suite signify?

Reduced levels

Reduced levels indicate heights on a drawing. They are usually shown to two decimal places only – that is, to the nearest 10 mm.

Reduced levels may have 'RL' in front of them to show that the figure represents a reduced level, for example RL 12.65. Another draftsman might put them in a little box instead, like this:

12.65



A reduced level on a drawing indicates the height of that point *relative* to a given reference point. This reference point is called the job datum (or sometimes the temporary benchmark or TBM) and is a *fixed, unmovable* point for the project. It may be marked by a nail driven into a metal plate on the kerb at the front of the block, or even a nail in the road. It will be given a height value by the architect and all points on the site can be related in height to this point (ie above or below).



The RL of the job datum is often an arbitrary number decided by the architect or surveyor, and is usually a nice round number such as 10.00 or 20.00.



The job datum is *never* given a value of 0.00. Do you know why?

The job datum may sometimes be related to the national survey scheme (the Australian Height Datum) and have an RL that reflects this, such as 18.635.

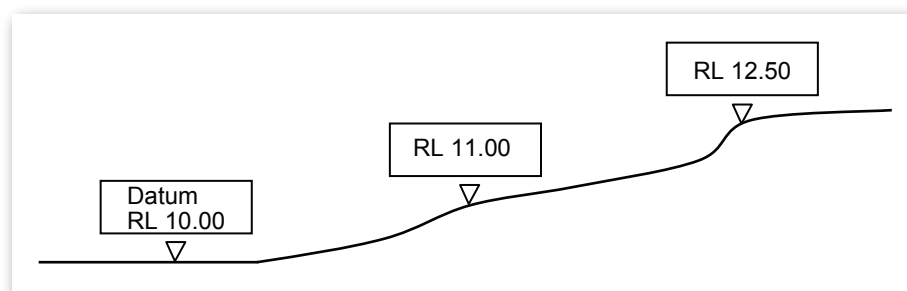


Figure 3.2: Section through ground showing RLs at three points.





Section 4 – Scale

Introduction

Just about every drawing used in the construction industry is drawn to scale. A small but important detail may be drawn full size – that is, at a scale of 1:1 – but this is quite rare.

A standard range of scales is used, ranging from 1:2 (the drawing is half of the real-life size) down to 1:500 (the drawing is one-five-hundredth of the real-life size). The scale the draftsman will use will depend on what needs to be shown in the drawing and the size of the sheet of paper used.

In this section we look at which scales are commonly used and how to use a scale rule.



Performance criteria

- 5.1 Dimensions for project and nominated locations are identified.
- 5.2 Construction types and dimensions for nominated locations are identified.

Paper sizes

It's obviously not practical to draw a building at full size, so a suitable scale and paper size must be chosen.

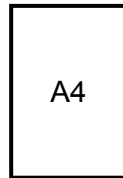
We use the metric system of paper sizes. It's a logical system (except that the *bigger* the number, the *smaller* the paper!). See if you can work it out by stating the size of the sheets of paper shown below.



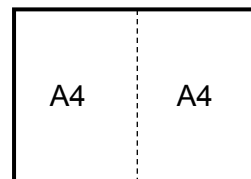
Activity 4.1 Paper sizes

See if you can work out the metric paper size system. Look at the sheets of paper shown below and write the size of each one in the spaces.

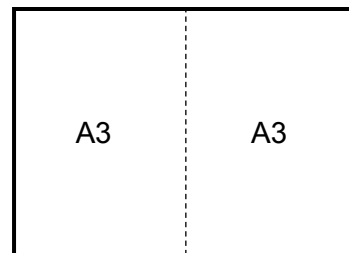
This guide you are reading is _____ size.



A sheet twice as big is _____ size.



A sheet twice as big as that is _____ size
... and so on.



Most drawings in the residential sector of the industry are on A3 or A2 size paper. There are also A1 and A0 sizes (A0 paper is quite large – 841 mm × 1189 mm). These are sometimes used on projects where the whole floor plan of a large building needs to be shown on a single sheet.

Scale

Scale is depicted as a ratio. An example is 1:10, which is spoken as 'one to 10' or 'one in 10'. This means that at that scale, each millimetre on the drawing represents the 10 millimetres on the building.

The scale of a drawing is chosen so that it can show the builder sufficient detail for the building to be constructed the way the architect or designer wants.



Activity 4.2 Common scales

Discuss which scales are most commonly used for each drawing type, and write them into the spaces below.

| | |
|---|--|
| Used for site plans for suburban house blocks (however, a large building on a big site may be drawn at 1:500) | |
| Used for floor plans and elevations on 'house-sized' buildings | |
| Used for floor plans on smaller buildings, such as an extension to a house | |
| Used for details (two answers are needed here) | |

Interpreting scaled drawings

You should always use the written dimensions when getting sizes from drawings, unless there's a very good reason not to.

On a well-drawn set of drawings, all the sizes the builder needs will be written somewhere on the drawings. Occasionally, however, if a required dimension is not written, the tradesperson will need to 'scale' from the drawing. This means that a scale rule is used to measure directly from the drawings.



Activity 4.3 Tips for scaling

Discuss, then fill in the blanks.

Check what _____ to use for a particular drawing.

The photocopying process sometimes results in drawings being slightly smaller or larger than the original. This means that there's no guarantee that the sizes you scale will be _____.

Scaling should only be done when you're *certain* that a written dimension is _____.

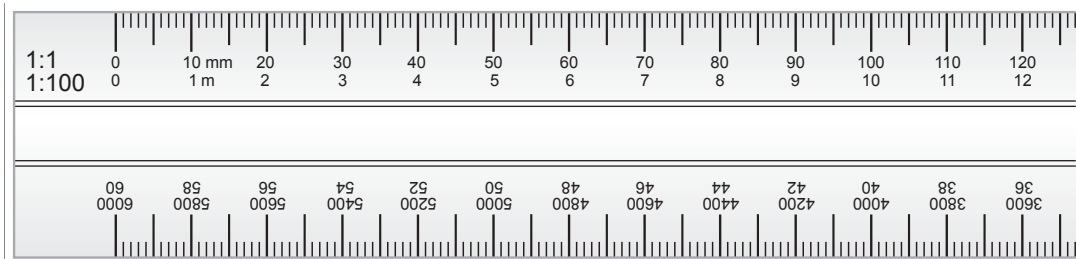


Using a scale rule

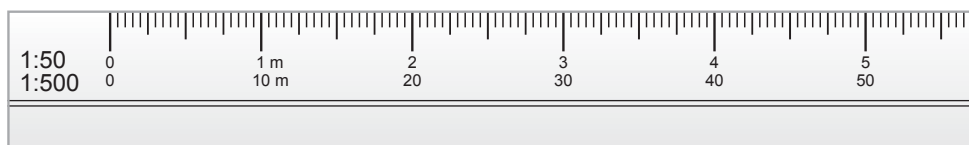
Scale rules are usually white and made of plastic. They have a different scale printed along each edge. Some have a single scale per edge, and others have two scales combined on one edge. Different brands may vary in the way the scales are grouped. A scale rule can be triangular shaped or flat, like a standard ruler.



On the top edge of the rule below, the scales are 1:1 and 1:100, so the dimensions they show differ by a factor of 100.

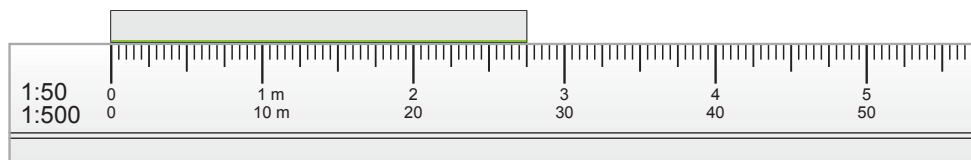


Another scale rule edge is shown below. In this case, the dimensions differ by a factor of 10 (1:50 is 10 times larger than 1:500).



Why do you think the manufacturer has put more than one scale on each edge of the rule?

To measure something to scale, put the zero mark on the left-hand edge of what you are measuring, and read the length at the right-hand edge, as shown below.





Activity 4.4 Measure the green box

Look at the image of the scale rule and the box and answer the following questions.

| | |
|---|--|
| How long is the box at a scale of 1:50? | |
| How long is it at a scale of 1:500? | |

Occasionally you may need to draw something yourself in order to explain part of the construction to an employee or subcontractor. Knowing how to use a scale rule will enable you to do it accurately.

Now it's time to practise reading a scale rule.



Activity 4.5 Reading a scale rule

Below is a section of a scale rule. Write the sizes indicated by each of the arrows. An example has been provided.

7 mm and 700 mm

_____ and _____

_____ and _____

_____ and _____

_____ and _____

_____ and _____

1:1
1:100

0 10 mm 20 30 40 50 60 70 80 90 100 110 120
0 1 m 2 3 4 5 6 7 8 9 10 11 12

600 580 560 540 520 500 480 460 440 420 400 380 360
009 088 068 048 028 008 800 600 400 200 000



Activity 4.6 Measuring lines with a scale rule

The lines shown below are drawn to various scales. The scale of each line is shown to its left.

Use your scale rule to measure each line and write its scale length in the box to the right of it. An example has been provided.

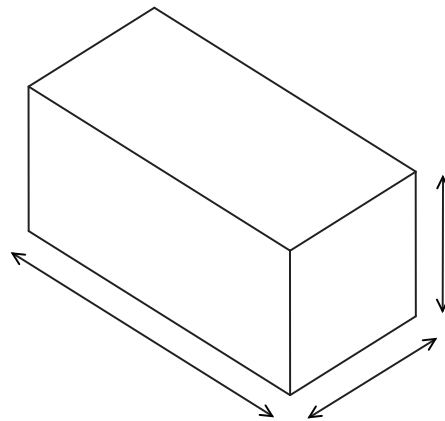
| | Scale | Line | Length (mm) |
|-----|-------|------|-------------|
| | 1:50 | | 2300 |
| 1. | 1:50 | | |
| 2. | 1:10 | | |
| 3. | 1:5 | | |
| 4. | 1:20 | | |
| 5. | 1:2 | | |
| 6. | 1:100 | | |
| 7. | 1:5 | | |
| 8. | 1:200 | | |
| 9. | 1:10 | | |
| 10. | 1:100 | | |



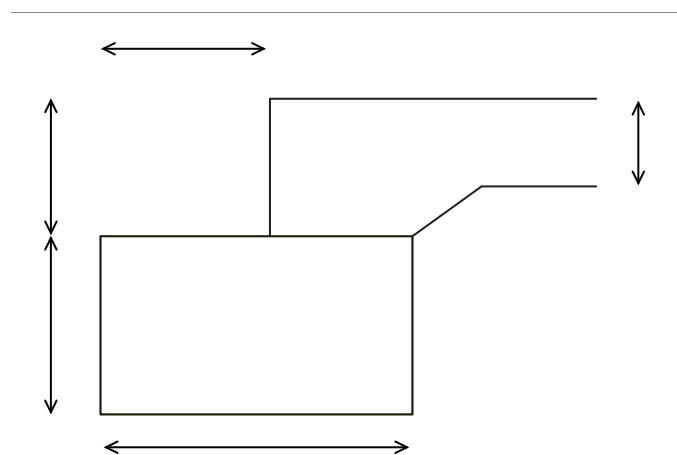
Activity 4.7 Measuring shapes with a scale rule

Use the appropriate side of your scale rule to work out the dimensions of the shapes below indicated by arrows. Write each answer neatly next to the dimension arrows.

Scale 1:5

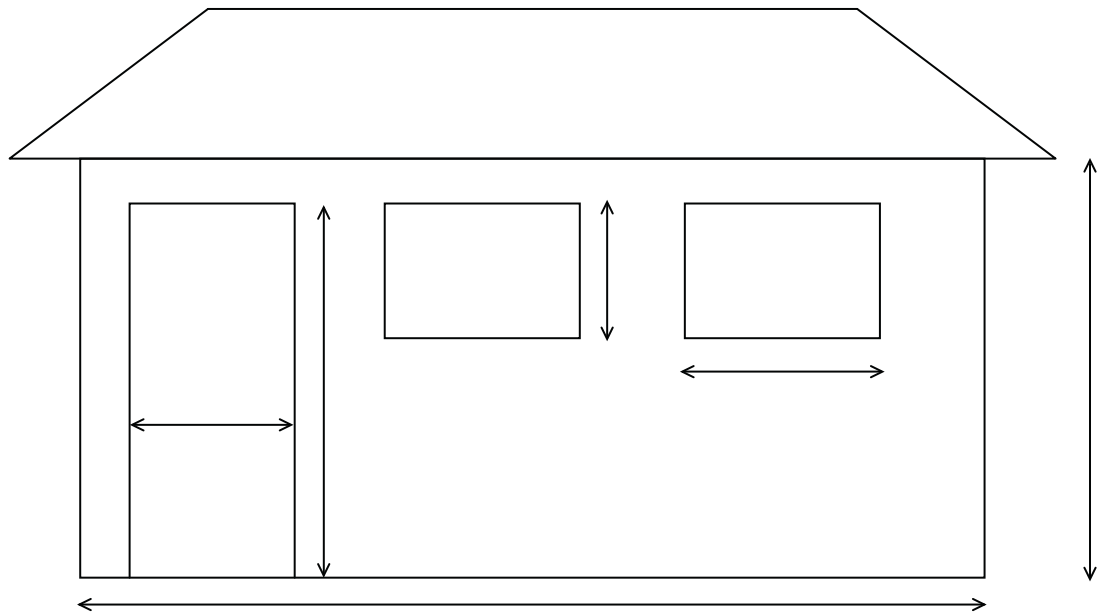


Scale 1:10





Scale 1:50





Section 5 – Abbreviations and symbols

Introduction

Some drawings need to convey a lot of information. To avoid confusion and to save space, abbreviations and symbols are used. These are standardised (used all over Australia), and you'll find that you soon become used to interpreting what they mean.

In this section you'll be introduced to some of the more common abbreviations and symbols.



Performance criteria

- 3.1 Construction symbols and abbreviations are recognised.
- 3.2 Legend is located on project drawings, and symbols and abbreviations are correctly interpreted.

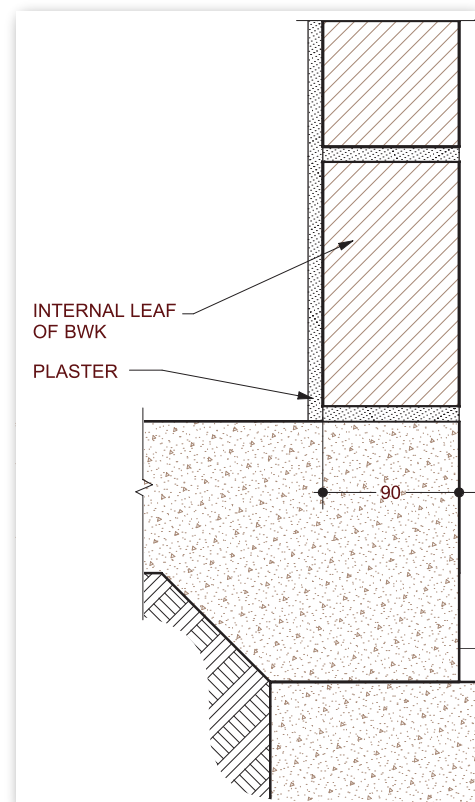
Abbreviations

Abbreviations can be created in different ways. In some cases the word is shortened. Examples include 'ENS' for ensuite and 'CPBD' for cupboard.

In other cases initials are used. Examples include 'WIR' for walk-in robe and 'WC' for water closet (toilet).

There might be several recognised abbreviations for the same thing. For example, you may see 'brickwork' shortened to BRK, BWK or just BK.

If you come across a new abbreviation in a drawing and you aren't sure what it means, have a look at where it is in the drawing as that will often give you a clue.



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If you see 'WM' on a plan and don't know what it means, but it's in the laundry, what do you think it might mean?



Activity 5.1 Interpreting abbreviations

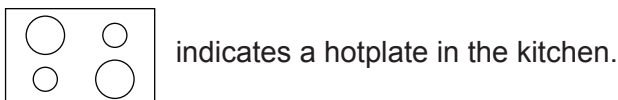
Here are some common abbreviations found in architectural plans. Write what you think each one means underneath it.

| | | |
|------|------|-----|
| KIT | CPBD | ENS |
| WIR | WC | HWS |
| MH | GPO | FL |
| PLST | CONC | COL |
| RWP | BM | SS |

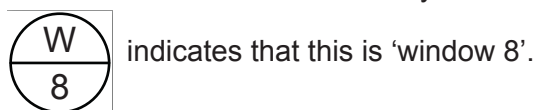


Symbols

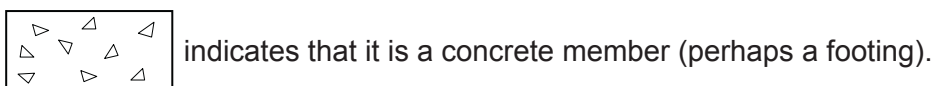
Like abbreviations, symbols are used instead of words on drawings to save space. There are a lot of them, but they're standardised (drawn the same way) to avoid confusion, so don't worry. Some of them look a lot like what they represent. For example, the symbol:



Others are more obscure. The symbol:



Some cross-sections have a 'filling' that symbolises what material is to be used. In drafting terms this is called 'hatching'. For example, this hatching:



As mentioned in Section 1, some drawings have a legend to indicate what the symbols used on the drawing mean.

The legend shown in Figure 5.1 is from a site plan. Without this legend, the symbols on the drawing could be misinterpreted.

Electrical, hydraulic and engineering drawings commonly have legends on them.

| LEGEND | |
|--------|-----------------------------|
| | - T.B.M. |
| | - WATER METER |
| | - TELSTRA PIT |
| | - COMMUNICATIONS PIT |
| | - POWER DOME |
| | - SEWER MAINTENANCE SHAFT |
| | - SEWER PROPERTY CONNECTION |
| | - TOP OF BANK |
| | - CHANGE IN GRADE |
| | - LIMESTONE RETAINING WALL |
| | - ROAD KERB/EDGE |
| | - ROAD CENTRE |

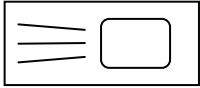
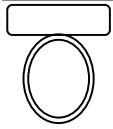
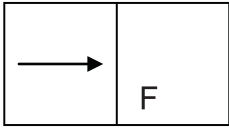
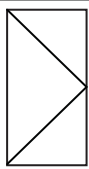

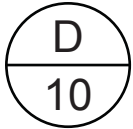
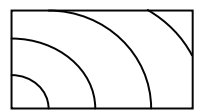
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Figure 5.1: A legend from a site plan showing several symbols and their meanings.



Activity 5.2 Interpreting symbols

Below are some common symbols found in architectural plans. Write what you think each one represents underneath it.

| | | |
|---|---|---|
|  |  |  |
|  |  |  |
|  |  |  |



Activity 5.3 Drawing symbols

Below is a list of common features found on most house plans. For each one, neatly draw the standard symbol for that feature.

| | |
|--|-----------------------------------|
| Bath (in plan) | Hand basin (in plan) |
| Double doors (in plan) | Double doors (in elevation) |
| Brick wall (in section) | Ground level (earth) (in section) |
| Horizontal sliding window (in elevation) | Top-hinged window (in elevation) |
| Dressed timber (in end section) | Sawn timber (in end section) |





Section 6 – Specifications

Introduction

A specification is a written description of the building to be constructed. It supplements the information on the drawings and, like the drawings, it is a legal part of the contract between the client and the builder.

A specification might only be a few pages long for a small project such as an addition to a house, or it might be a multi-volume set of bound books for a big project such as a shopping mall or high-rise building.



For a large commercial or industrial project there may be a specification for the architectural features, and additional specifications for the plumbing, electrical and mechanical requirements of the job. For house construction, one specification booklet is usually sufficient.



Performance criteria

- 1.3 **Quality requirements** of company operations are recognised and adhered to.
- 1.4 **Environmental requirements** and controls are identified from job plans, specifications and environmental plan.
- 2.2 Amendments to **specifications** are checked to ensure currency of **information** and conveyed to others where appropriate.
- 6.1 Job specifications are identified from drawings, notes and descriptions.
- 6.2 Standards of work, finishes and tolerances are identified from the project specifications.
- 6.3 **Material attributes** are identified from specifications.

The purpose of a specification

Drawings are the best way to convey most of the information required for a building project, but a specification is needed to explain anything that cannot be included clearly in the drawings. Specifications are commonly used to communicate the following.

- Fixture and fittings to be used, where things like dimensions, colour or model number are important – for example 'Acme 'De Luxe clawfoot bath, 1675mm, white'.





- To provide instructions to the builder or tradespeople for how something is to be done. For example, drawings might show that internal walls are to have a plaster finish, but it is the specification that tells the plasterer how – ‘bring walls to a reasonable flat surface by the application of a cement render float coat while the plaster is setting’. Instructions can also relate to regulations – ‘all lintels shall be galvanised treated, in accordance with BCA Clause 3.3.3.4’.
- To provide instructions to the builder about things that may not be part of the finished building but that nevertheless need to happen during the project – for example, safety barriers, disposal of rubbish or protection or adjoining properties.

Specifications usually include a clause about making good any damage to footpaths, fences and any other amenities in the vicinity of the project.

There will also be a clause that deals with the general quality of the materials and workmanship to be used. This usually reads something like:

All materials are to be new and of best quality and all work is to be carried out to best practice and to the relevant Australian Standard® where one applies.



Image reproduced courtesy of Housing Industry Association Ltd

Layout

The specification (or ‘speci’) for a house is divided into sections (like short chapters) that each deal with a specific trade that will be involved in the project. The sections are usually arranged in the same order that the job will be done in – starting with excavator, concreter and bricklayer through to painter, floor coverer and landscaper at the end.

Each section may contain detailed descriptions specific to that job or it may just contain general instructions about workmanship, quality and so on. In that case, it will refer to a schedule at the end of the specification. The schedule will have details for a particular job; for example, sizes of skirtings, paint finishes, types of doors, brand of stove, colour of bath and so on.

A section called ‘preliminaries’ at the start of the specification deals with general things, such as the extent of the work, temporary services, the job sign, site sheds and toilets, temporary fences or hoardings and access for the client during construction.

In project-home building – where the same model is built over and over for different clients – they may use a standard specification and add to that an addendum that includes the selections and specific details for each client.





Changes

Sometimes changes, called amendments, might be made to the specification. Amendments could relate, for example, to changes to materials or products used or methods of carrying out specified work. They should be clearly marked so that everyone who needs to notices them. Amendments usually have to be signed or initialled by both the builder and the client to show they both agree.

On rare occasions, the specification may conflict with the drawings. For example, the specification may call for the front door to have a glass panel in the top half, yet the elevation may show no glass in the door. In this case, the builder should contact the architect or client and ask for clarification.



Costing

A section in the specification will deal with ‘provisional sums’ and ‘prime costs’.

Provisional sum items are such things as the oven, bath, toilet suite, tiles and so on, which may not have been selected by the time the contract is signed. In that case, the builder will allow a certain amount in the contract (perhaps \$600 for the oven and \$40 per square metre for the ceramic tiles). When these items are eventually selected by the client, the contract price will be adjusted up or down according to the actual cost.

Prime costs are those costs that the builder can't reasonably be expected to put an exact figure on when tendering for the job. For example, in certain areas the builder may allow a prime cost of so much per cubic metre if rock is encountered during the excavation work. If none is found, then the client doesn't pay any extra, but if it is, the builder will be reimbursed for any extra costs that may arise.





Activity 6.1 Specifications

In your own words, briefly answer the following questions.

1. Why is a specification needed as well as drawings?

2. Name two types of specifications.

3. Give two examples of items in a house project that can better be described in a specification than on a drawing.

4. Give two examples of instructions to a builder about how he or she is to conduct the construction of the project in line with the organisation's standards, quality requirements and environmental considerations.

5. What is a prime cost item?

6. Give an example of something that would be a provisional sum item.

7. What do you think could happen if a subcontractor is not aware of amendments to a specification?



8. What type of material finish would you expect to find in:

a) a residential bathroom

b) a residential loungeroom.

9. How would you identify and to whom would you report any faults in tools, equipment or materials?





Section 7 – Finding information on drawings

Introduction

This section will give you a chance to put into practice what you've learned so far about reading and interpreting plans.



Performance criteria

- 1.1 Main types of **plans and drawings** used in the construction sector of the industry are identified.
- 1.2 **Key features** and functions of each type of drawing are identified.
- 2.1 Title panel of **project documentation** is checked to verify latest amendments to drawing.
- 3.1 Construction symbols and abbreviations are recognised.
- 3.2 Legend is located on project drawings, and symbols and abbreviations are correctly interpreted.
- 4.1 Orientation of the plan with the site is achieved.
- 4.2 Key features of the site are identified and located.
- 4.3 Access to site is gained and services, main features, contours and datum are identified.
- 5.1 Dimensions for project and nominated locations are identified.
- 5.2 Construction types and dimensions for nominated locations are identified.
- 5.3 Environmental controls and locations are identified.
- 5.4 Location, dimensions and tolerances for ancillary works are identified.
- 6.1 Job specifications are identified from drawings, notes and descriptions.

In the next four activities you need to find information on the relevant plan from the class set of drawings and write it down. Note that the right answer to some questions might be 'Not shown'.

We'll start with the site plan.



Activity 7.1 Site plan information

Use the site plan in the class set. Find the information requested below and write it into the spaces provided. Discuss and compare your findings with your team.

| | |
|---|--|
| 1. What is the street address of the project? | |
| 2. Who is the client? | |
| 3. What is the width of the block at the front boundary? | |
| 4. What is the depth of the block? | |
| 5. What is the floor level (FL or FFL) of the house? | |
| 6. What is the front setback (distance from front boundary to nearest part of the house)? | |
| 7. What is the width of the driveway? | |
| 8. What is the driveway to be paved with? | |
| 9. Where is the clothes hoist to be situated? | |
| 10. Is the driveway crossover part of the contract? | |
| 11. How far from the left-hand (or right-hand) boundary is the house? | |
| 12. Which direction does the front of the house face? | |
| 13. How wide is the garden path? | |
| 14. What are the existing boundary fences made of? | |
| 15. What is the RL of the datum point (or TBM)? | |



| | |
|--|--|
| 16. What environmental controls and locations did you identify? | |
| 17. What dimensions and tolerances for ancillary works did you identify? | |

Now it's time to look at the floor plan.



Activity 7.2 Floor plan information

Use the floor plan in the class set. Find the information requested below and write it into the spaces provided.

| | |
|--|--|
| 1. What is the width of the main bedroom (Bed 1)? | |
| 2. How many downpipes (DPs or RWPs) are there? | |
| 3. What size (width × depth) is the WIR in the main bedroom? | |
| 4. How wide is the kitchen window? | |
| 5. How wide is the WC door? | |
| 6. What depth are the shelves in the built-in robes? | |
| 7. How wide is the garage door? | |
| 8. How many bedrooms are there? | |
| 9. The rear external tap is on the outside of which room's wall? | |
| 10. How long is the bath? | |



| | |
|--|--|
| 11. What is the overall width of the house? | |
| 12. How long (wide) is the outside wall nearest the front boundary? | |
| 13. Where is the electric meter box located? | |
| 14. Where is the water heater located? | |
| 15. What size (width × length) are the external brick piers? | |
| 16. Where is the manhole into the roof space located? | |
| 17. How thick are the internal walls? | |
| 18. What is the slope (pitch) of the roof? | |
| 19. What are the internal dimensions (width × length) of the garage? | |
| 20. How many external doors (doors leading outside) are there? | |



Next, we will work with the elevations.



Activity 7.3 Elevations information

Use the elevations in the class set. Find the information requested below and write it into the spaces provided.

| | |
|---|--|
| 1. What are the external walls made from (eg brick, boards, corrugated iron)? | |
| 2. What is the floor-to-ceiling height? | |
| 3. What is the slope (pitch) of the roof? | |
| 4. What is the height of the toilet window? | |
| 5. What is the width of the Bed 2 window? | |
| 6. What is the height of the Bed 2 window? | |
| 7. At what height above floor level is the meter box? | |
| 8. What finish is applied to the gable part of the roof (if there is one)? | |
| 9. What is the roof covering? | |
| 10. What type(s) of windows are included in the house (how do they open)? | |



Finally, we will read and interpret the electrical plan.



Activity 7.4 Electrical plan information

Use the electrical plan in the class set. Find the information requested below and write it into the spaces provided.

| | |
|--|--|
| 1. What type of light fitting(s) does the kitchen have? | |
| 2. How many external lights are there? | |
| 3. How many GPOs are there in the main bedroom? | |
| 4. At what height are the GPOs in the laundry? | |
| 5. How many fluorescent lights are there in the house? | |
| 6. Where is/are the TV point(s) located? | |
| 7. How many exhaust fans are in the house? | |
| 8. Where is the switch for the rear outside light? | |
| 9. At what height above the floor are the GPOs in Bed 2? | |
| 10. How many smoke detectors are shown? | |



Section 8 – Plan-drawing and specification-writing activities

Introduction

This section is an optional component of the course. You will be advised by your lecturer whether this will be part of the course for your class or group. Your lecturer will provide any required learning materials and instructions. These activities are not part of the assessment for the course.





Annex A – Unit details

| | |
|-----------------------------|---|
| Unit title | Read and interpret plans and specifications |
| Descriptor | This unit of competency specifies the outcomes required to read and interpret plans and specifications relevant to construction operations. It includes the identification of types of plans and drawings and their functions, the recognition of commonly used symbols and abbreviations, the identification of key features and specifications on a site plan, the comprehension of written job specifications and the recognition of document status and amendment detail. |
| National code | CPCCCM2001A |
| Employability skills | This unit contains employability skills. |
| Prerequisite units | Nil |
| Application | This unit of competency supports achievement of basic reading and interpretation of plans and specifications commonly used in the construction industry. |

Element 1 Identify types of drawings and their functions.

- 1.1 Main types of **plans and drawings** used in the construction sector of the industry are identified.
- 1.2 **Key features** and functions of each type of drawing are identified.
- 1.3 **Quality requirements** of company operations are recognised and adhered to.
- 1.4 **Environmental requirements** and controls are identified from job plans, specifications and environmental plan.

Element 2 Recognise amendments.

- 2.1 Title panel of **project documentation** is checked to verify latest amendments to drawing.
- 2.2 Amendments to **specifications** are checked to ensure currency of **information** and conveyed to others where appropriate.



| |
|---|
| Element 3 Recognise commonly used symbols and abbreviations. |
| 3.1 Construction symbols and abbreviations are recognised. |
| 3.2 Legend is located on project drawings, and symbols and abbreviations are correctly interpreted. |
| Element 4 Locate and identify key features on a site plan. |
| 4.1 Orientation of the plan with the site is achieved. |
| 4.2 Key features of the site are identified and located. |
| 4.3 Access to site is gained and services, main features, contours and datum are identified. |
| Element 5 Identify project requirements. |
| 5.1 Dimensions for project and nominated locations are identified. |
| 5.2 Construction types and dimensions for nominated locations are identified. |
| 5.3 Environmental controls and locations are identified. |
| 5.4 Location, dimensions and tolerances for ancillary works are identified. |
| Element 6 Read and interpret job specifications. |
| 6.1 Job specifications are identified from drawings, notes and descriptions. |
| 6.2 Standards of work, finishes and tolerances are identified from the project specifications. |
| 6.3 Material attributes are identified from specifications. |



Required skills and knowledge

Required skills

- communication skills to:
 - enable clear and direct communication, using questioning to identify and confirm requirements, share information, listen and understand
 - read and interpret:
 - documentation from a variety of sources
 - drawings and specifications
 - use language and concepts appropriate to cultural differences
 - use and interpret non-verbal communication, such as hand signals
- identifying and accurately reporting to appropriate personnel any faults in tools, equipment or materials
- numeracy skills to apply measurements and make calculations, including heights, areas, volumes and grades
- organisational skills, including the ability to plan and set out work
- teamwork skills to work with others to action tasks and relate to people from a range of cultural and ethnic backgrounds and with varying physical and mental abilities
- technological skills to:
 - use a range of mobile technology, such as two-way radio and mobile phones
 - voice and hand signals to access and understand site-specific instructions.

Required knowledge

- basic calculations of heights, areas, volumes and grades
- commonly used construction symbols and abbreviations
- construction terminology
- drawing conventions
- features of plans and elevations, including direction, scale, key, contours, symbols and abbreviations
- job safety analysis (JSA) and safe work method statements
- key features of formal job specifications
- processes for application of scales in plan preparation and interpretation
- project quality requirements
- site and equipment safety (OHS) requirements
- techniques for orienting/confirming the orientation of a plan.



Evidence guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

| | |
|---|--|
| Overview of assessment | This unit of competency could be assessed in the workplace or a close simulation of the workplace environment, provided that simulated or project-based assessment techniques fully replicate construction workplace conditions, materials, activities, responsibilities and procedures. |
| Critical aspects for assessment and evidence required to demonstrate competency in this unit | <p>A person who demonstrates competency in this unit must be able to provide evidence of the ability to:</p> <ul style="list-style-type: none">• locate, interpret and apply relevant information, standards and specifications• comply with site safety plan, OHS regulations and state and territory legislation applicable to workplace operations• comply with organisational policies and procedures, including quality requirements• communicate and work effectively and safely with others• for a minimum of two different projects, read and interpret the project plans, including:<ul style="list-style-type: none">◦ confirmation of amendment status and drawings confirmed 'for construction'◦ orientation of plans to the ground◦ six key features on both the plan and the site◦ confirmation of six items of information from the title block of the project plans◦ six construction dimensions, levels and locations from the project plans◦ six ancillary works dimensions, levels and locations from the project plans◦ for a minimum of two formal specifications, identify the dimensions, material requirements and processes to be followed. |



| | |
|---|---|
| Context of and specific resources for assessment | <p>This competency is to be assessed using standard and authorised work practices, safety requirements and environmental constraints.</p> <p>Assessment of essential underpinning knowledge will usually be conducted in an off-site context.</p> <p>Assessment is to comply with relevant regulatory or Australian Standards® requirements.</p> <p>Resource implications for assessment include:</p> <ul style="list-style-type: none">• an induction procedure and requirement• realistic tasks or simulated tasks covering the mandatory task requirements• relevant specifications and work instructions• tools and equipment appropriate to applying safe work practices• support materials appropriate to activity• workplace instructions relating to safe work practices and addressing hazards and emergencies• material safety data sheets• research resources, including industry related systems information. <p>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.</p> |
|---|---|



| | |
|-----------------------------|---|
| Method of assessment | <p>Assessment methods must:</p> <ul style="list-style-type: none">• satisfy the endorsed Assessment Guidelines of the Construction, Plumbing and Services 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 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. <p>Validity and sufficiency of evidence requires that:</p> <ul style="list-style-type: none">• 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, with a decision on competency only 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. <p>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.</p> <p>Supplementary evidence of competency may be obtained from relevant authenticated documentation from third parties, such as existing supervisors, team leaders or specialist training staff.</p> |
|-----------------------------|---|



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. Bold italicised wording, if used in the performance criteria, is detailed below. 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) may also be included.

| | |
|--|---|
| <p><i>Plans and drawings</i> include:</p> | <ul style="list-style-type: none"> • construction plans • cross-sectional plans • dimensions and notes • illustrations • longitudinal plans • project specifications • site plans • structural detail and specification providing illustrations and dimensions. |
| <p><i>Key features</i> of plans and specifications include:</p> | <ul style="list-style-type: none"> • characteristics • compatibility • construction • location • pattern dimension • quantities • sizes • type of product or service. |
| <p><i>Quality requirements</i> include relevant regulations, including:</p> | <ul style="list-style-type: none"> • Australian Standards® • internal company quality policy and standards • manufacturer specifications, where specified • workplace operations and procedures. |
| <p><i>Environmental requirements</i> include:</p> | <ul style="list-style-type: none"> • clean-up management • waste management. |



| | |
|---|---|
| <p>Project documentation includes:</p> | <ul style="list-style-type: none"> • contracts • drawings • schedule of rates • specifications • standard procedures and practices • supplementary specifications • work schedules. |
| <p>Specifications include:</p> | <ul style="list-style-type: none"> • detail relating to materials and quality of work, quality assurance, nominated subcontractors, and provision of site access/facilities • details relating to performance, including: <ul style="list-style-type: none"> ◦ characteristics ◦ material types ◦ standards of work ◦ tolerances ◦ treatments and finishes. |
| <p>Information includes:</p> | <ul style="list-style-type: none"> • diagrams or sketches and graphics • instructions issued by authorised organisational or external personnel • manufacturer specifications and instructions • maps • material safety data sheets (MSDS) • memos • organisation work specifications and requirements. • plans and specifications • regulatory and legislative requirements pertaining to operations and the environment • relevant Australian standards • safe work procedures related to construction site operations • signage • verbal or written and graphical instructions • work bulletins • work schedules. |
| <p>Material attributes include:</p> | <ul style="list-style-type: none"> • characteristics • construction requirements • treatments and finishes • types. |



Annex B – Learning plan

Note: Sessions are nominally two hours.

| Session | Performance criteria | Guide | Resources |
|---------|---|--|-------------------------------|
| 1 | 1.1 | Section 1 – Introduction Types of drawings Views: Plan view | Learner's guide |
| 2 | 1.1, 1.2, 1.4 3.1, 3.2 4.1, 4.2, 4.3 5.4 | Revision of previous session Continue Section 1: Views: Plan view Site plan Floor plan Electrical plan | Learner's guide |
| 3 | 1.1, 1.2, 1.3, 1.4 3.1 5.3 | Revision of previous session Continue Section 1: Views: Elevations Sections Details Environmental management | Learner's guide |
| 4 | 1.3 2.1, 2.2 | Revision of Views Section 2 – Title panels | Learner's guide |
| 5 | – | Assessment 1 Part A: Drawing types Title panels | |
| 6 | 5.1, 5.2, 5.4 | Review Assessment 1 Part A Section 3 – Dimensions | Learner's guide |
| 7 | 5.1, 5.2 | Revision of previous session Section 4 – Scale | Learner's guide Scale rule |



| Session | Performance criteria | Guide | Resources |
|---------|--|--|-------------------------------|
| 8 | 3.1, 3.2 | Revision of previous session Section 5 – Abbreviations and symbols | Learner's guide |
| 9 | – | Assessment 1 Part B: Scaled dimensions Abbreviations and symbols | Scale rule |
| 10 | 2.2 6.1, 6.2, 6.3 | Review Assessment 1 Part B Section 6 – Specifications | Learner's guide Scale rule |
| 11 | 1.1, 1.2 2.1 3.1, 3.2 4.1, 4.2, 4.3 5.1, 5.2, 5.3 6.1 | Assessment 1 Part C: Specifications Section 7 – Finding information on drawings: Site plan Floor plan | Learner's guide Scale rule |
| 12 | 1.1, 1.2 2.1 3.1, 3.2 5.1, 5.2, 5.3 6.1 | Review Assessment 1 Part C Revision of previous session Continue Section 7 – Finding information on drawings: Elevations Electrical plan | Learner's guide |
| 13 | 1.1, 1.2 3.1 4.1, 4.2, 4.3 5.1, 5.2, 5.4 | Assessment 2 Part A: Site plans Floor plans | Scale rule |
| 14 | 1.1, 1.2 3.1, 3.2 5.1, 5.2 | Assessment 2 Part B: Elevations Electrical plan | Scale rule |
| 15 | All | Section 8 – Group drawing activity | Learner's guide Scale rule |
| 16 | 6.1, 6.2, 6.3 | Continue Section 8 – Group specification writing activity | Learner's guide |



Annex C – Assessment plan

The assessments for this unit are designed to assess your competency in the elements as listed in the unit details at Annex A. They are split into several parts, with each one testing specific areas of learning covered in the course. All assessments are closed-book written tests done in class, ie you may not consult any notes or other texts.

| Due | Assessment | Elements |
|-------------------|--|---------------|
| Session 5 | Assessment 1 Part A Written theory assessment. Questions will require a short answer. You will need a scale rule for some of them. Topics will be from Sections 1 and 2 in this guide. | 1, 2, 3, 4, 5 |
| Session 9 | Assessment 1 Part B Written theory assessment. Questions will require a short answer. You will need a scale rule for some of them. Topics will be from Sections 3, 4 and 5 in this guide. | 3, 5 |
| Session 11 | Assessment 1 Part C Written theory assessment. Questions will require a short answer. Topics will be from Section 6 in this guide. You will be required to find information from a specification provided by your lecturer. | 1, 5, 6 |
| Session 13 | Assessment 2 Part A Written practical assessment. You will be required to find information from a site plan and a floor plan provided by your lecturer. | 1, 2, 3, 4, 5 |
| Session 14 | Assessment 2 Part B Written practical assessment. You will be required to find information from an elevations drawings and an electrical plan provided by your lecturer. | 1,2, 3, 5 |



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

There is a process to be followed should you wish to appeal the result of your assessment. Please ask your lecturer for more information about this.



Annex D – Assessments





Assessment 1 – Written theory

Introduction

This assessment is designed to assess your ability to:

- understand the various types of drawing used in the residential sector of the construction industry and what their purposes are
- understand the information found on title panels of drawings
- understand the system and conventions used to dimension construction drawings
- accurately use a scale rule to ascertain dimensions from drawings
- understand the main abbreviations and symbols used on construction drawings
- understand the layout and conventions used in written specifications and their relevance to the drawings

Requirements and format

Assessment 1 is divided into three parts, A, B and C. You are required to answer a series of short-answer questions relevant to the above elements. Some questions require the measuring of lines with a scale rule to determine dimensions.

The due dates for the assessment and the elements it assesses are detailed in the assessment plan at Annex C. Your lecturer will explain the marking criteria.

Materials and equipment

To attempt this assessment you will need:

- a scale rule
- pens, pencils, etc
- the assessment paper
- a specification (lecturer to provide).





CPCCCM2001A

Read and interpret plans and specifications

Assessment 1 – Written theory Part A

Name _____ Date _____

I have received feedback on this assessment.

Signature _____ Date _____

Assessor's initials





Assessment 1 – Written theory Part A

Section 1 – Drawing types

Below is a table with four types of drawings listed across the top, and 10 items of information that can be found on them listed down the left-hand side.

For each of the items of information, place a tick in the box below the type of drawing where you think you would find that information.

The first one is done as an example, indicating that the overall width of a building can be found on the floor plan.

| | Site plan | Floor plan | Elevation | Electrical plan |
|----------------------------------|-----------|------------|-----------|-----------------|
| Overall width of building | | ✓ | | |
| 1. Width of driveway | | | | |
| 2. Position of downpipes (RWPs) | | | | |
| 3. Type of windows | | | | |
| 4. Position of external lights | | | | |
| 5. Width of doors | | | | |
| 6. Finished floor level | | | | |
| 7. Pitch (slope) of roof | | | | |
| 8. Thickness of external walls | | | | |
| 9. Ceiling height | | | | |
| 10. Height of GPOs | | | | |



11. List three reasons why drawings are essential to the construction of a house.

- 1. _____
- 2. _____
- 3. _____

12. Why isn't it necessary for the draftsman to show details of every little thing to be built?

13. List three pieces of information that you would expect to find on any site plan.

- 1. _____
- 2. _____
- 3. _____

14. Briefly explain what ancillary works are.

15. How are elevations labelled?

16. Environmental management is an essential part of any project. List 3 controls that might be required on a building project.

- a _____
- b _____
- c _____



Section 2 – Title panels

Below at right is the title panel from a drawing for a new house. In the spaces below, write the answers to the following questions. For some questions 'not shown' may be the answer.

17. Where is the house to be built?

18. When was the house originally designed?

19. Who is the builder?


20. When was Door 12 changed?

21. Who will be the owner of the house?

22. How many drawings are in the set?

23. When was the most recent change made?

24. When is the house due to be completed?

| | |
|---|---|
| Amendments | |
| 3 | 6-10-12 Door 6 changed to FH opening ' ' Bulkhead to kitchen deleted |
| 2 | 14-8-12 Door 12 widened to 1440 |
| 1 | 21-7-12 Window 17 added |
|  Terrific Homes 28 Main St Sandhurst 6399 Ph 9000 1212 | |
| Client Mr J K & Mrs M W Williams | |
| Project New Residence | |
| Address Lot 132 Hillview Close Oakville | |
| Scale 1:100 | Floor Plan |
| Job No 2012/15 | Sheet 2 of 6 |
| Issue date 14 – 05 – 2012 | Designed by R Edwards |
| Revision no 3 | Drawn by J L W |

End of Assessment 1 Part A





CPCCCM2001A

Read and interpret plans and specifications

Assessment 1 – Written theory Part B

Name _____ Date _____

I have received feedback on this assessment.

Signature _____ Date _____

Assessor's initials





Assessment 1 – Written theory Part B

Section 3 – Scaled dimensions

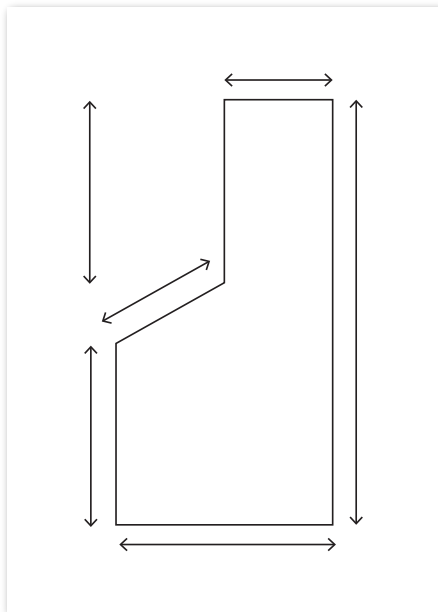
Below are some lines drawn to various scales. Using your scale rule, carefully measure each line according to the scale shown to its left, and write down its length (in mm) in the box to the right of the line.

| | Scale | Line | Length (mm) |
|-----|-------|------|-------------|
| 25. | 1:2 | | |
| 26. | 1:50 | | |
| 27. | 1:5 | | |
| 28. | 1:200 | | |
| 29. | 1:10 | | |
| 30. | 1:50 | | |
| 31. | 1:100 | | |
| 32. | 1:5 | | |
| 33. | 1:10 | | |
| 34. | 1:20 | | |

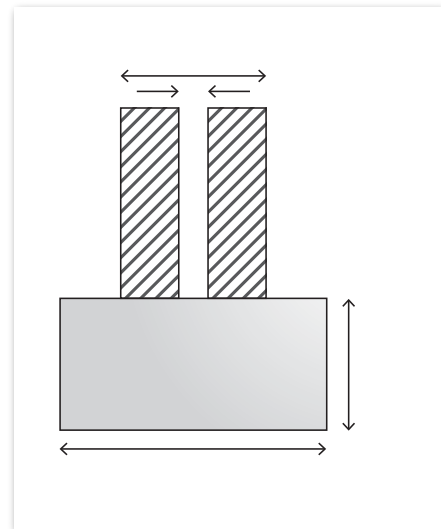


35. Below are some details from drawings. The scale of each is shown.

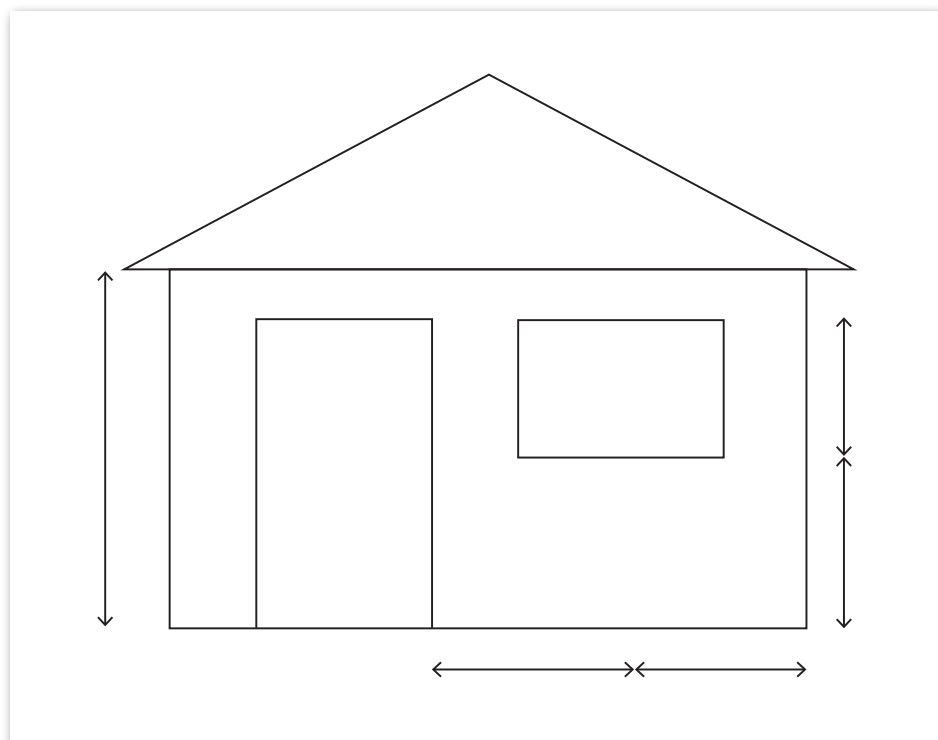
Using your scale rule, write in the missing dimensions indicated by the arrows.



Scale 1:5



Scale 1:10

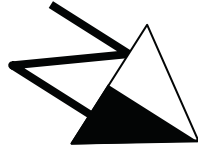


Scale 1:50

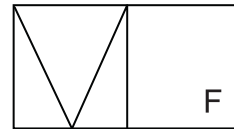


Section 4 – Symbols and abbreviations

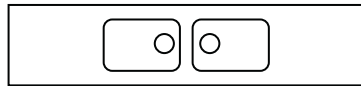
Below are some symbols that are commonly used on construction drawings. Below each one, write what you think the symbol represents.



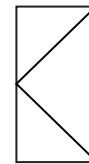
36. _____



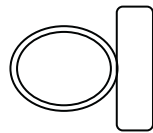
37. _____



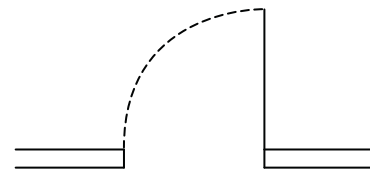
38. _____



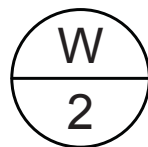
39. _____



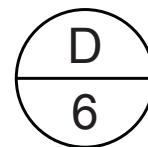
40. _____



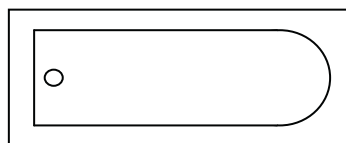
41. _____



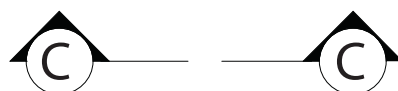
42. _____



43. _____



44. _____



45. _____



Below are some abbreviations that are commonly used on construction drawings. Next to each one, write what you think the abbreviation means.

- 46. BWK _____
- 47. SHR _____
- 48. WC _____
- 49. GPO _____
- 50. DP _____
- 51. SS _____
- 52. FGL _____
- 53. WIR _____
- 54. CL _____
- 55. HWU _____

End of Assessment 1 Part B



CPCCCM2001A

Read and interpret plans and specifications

Assessment 1 – Written theory Part C

Name _____ Date _____

I have received feedback on this assessment.

Signature _____ Date _____

Assessor's initials





Assessment 1 – Written theory Part C

Section 5 – Specifications

Below are five statements about specifications. Some are true and some are false. Indicate by circling either the word 'True' or 'False' which one you think applies to each statement.

| | | |
|---|------|-------|
| 56. A typical specification for a house will have all of these items in it: <ul style="list-style-type: none"> • type and colour of bricks • room sizes • window positions • door locks and hardware. | True | False |
| 57. The specification for a job forms part of the legal contract that the builder has with the client. | True | False |
| 58. Specifications are usually divided into sections representing the trades involved in the job, such as carpenter, bricklayer, painter, etc. | True | False |
| 59. If the information in the specification about part of a job is different from what the drawings show, the builder has the choice of doing that part of the job either way. | True | False |
| 60. The purpose of a specification is to describe in words information that is difficult to show on drawings. | True | False |

The following questions refer to the specification supplied with this question paper. Find the information required and write it in the spaces provided.

61. What does the specification say to do if a measurement on the floor plan is different from that shown on the elevations?

62. Who pays for the water used during construction of the house?

63. What finish is the concrete floor slab to have?

64. What type of bricks are to be used for the window sills?



65. How long is the warranty for the termite treatment to be?

66. There will be a variation to the contract if the sewer connection is deeper than what?

67. How many shelves will the pantry have?

68. What size are the wall tiles to be?

69. Are any amendments noted in the specification? Yes/No
If yes, what do they state?

70. Are any environmental controls in the specifications? Yes/No
If yes, state or describe one example here.

71. Find an example of a requirement to follow an Australian Standards®. State:

the number of the Standard _____

the material or process the requirement relates to _____

Briefly explain the requirement _____

End of Assessment 1



Assessment 2 – Practical

Introduction

This assessment is designed to assess your ability to:

- find required dimensions on various types of construction drawing
- find and interpret written information on various types of construction drawing.

Requirements and format

Assessment 2 is divided into two parts, A and B. You are required to answer a series of short-answer questions relating to a set of drawings that your lecturer will provide.

The due dates for the assessment and the elements it assesses are detailed in the assessment plan at Annex C. Your lecturer will explain the marking criteria.

Materials and equipment

To attempt this assessment you will need:

- a scale rule
- pens, pencils, etc
- the assessment paper
- a set of drawings (lecturer to provide)
- a set of drawing standards (lecturer to provide).





CPCCCM2001A

Read and interpret plans and specifications

Assessment 2 – Practical Part A

Name _____ Date _____

I have received feedback on this assessment.

Signature _____ Date _____

Assessor's initials





Assessment 2 – Practical Part A

Section 1 – Site plans

Find the following information on the site plan provided, and write your answers in the spaces below.

Note that some of the information may not appear on the plan. For these questions, write 'not shown'.

| | |
|--|-------|
| 1. What is the depth of the building block? | |
| 2. What is the width of the driveway? | |
| 3. What does 'FFL' on the outline of the house mean? | |
| 4. Which direction does the garage face? | |
| 5. What is the 'setback' of the house? | |
| 6. What is the address of the site? | |
| 7. Where is the datum (T.B.M.) located? | |
| 8. State the highest and lowest points on the site. Use the correct units (m or mm). | |
| 9. What is the width of the house? | |
| 10. List three key features of the site plan. | |
| | _____ |
| | _____ |
| | _____ |



Section 2 – Floor plans

Find the following information on the floor plan provided, and write your answers in the spaces below.

Note that some of the information may not appear on the plan. For these question, write the answer 'not shown'.

| | |
|---|--|
| 11. What is the width of the main bedroom (Bed 1)? | |
| 12. How many downpipes are there? | |
| 13. What size (width × depth) is the WIR in the main bedroom? | |
| 14. How wide is the kitchen window? | |
| 15. How wide is the door to Bed 2? | |
| 16. How wide is the fridge recess? | |
| 17. How wide is the garage door? | |
| 18. How many bedrooms are there? | |
| 19. What is the floor covering to the kitchen? | |
| 20. How wide is Bed 3? | |
| 21. What is the overall depth of the house? | |
| 22. How long (ie wide) is the outside wall nearest the back boundary? | |
| 23. How many 720-wide doors are there in the house? | |
| 24. Over which rooms is the water heater located? | |
| 25. What is the thickness of the concrete floor slabs? | |
| 26. Where is the manhole into the roof space located? | |
| 27. How thick are the internal walls? | |
| 28. How high are the skirting boards? | |
| 29. How wide is the robe recess in Bed 2? | |
| 30. What is the size of the brick piers to the alfresco area? | |

End of Assessment 2 Part A



CPCCCM2001A

Read and interpret plans and specifications

Assessment 2 – Practical Part B

Name _____ Date _____

I have received feedback on this assessment.

Signature _____ Date _____

Assessor's initials





Assessment 2 – Practical Part B

Section 3 – Elevations

Find the following information on the elevations provided, and write your answers in the spaces below.

Note that some of the information may not appear on the plan. For these question, write the answer 'not shown'.

| | |
|--|--|
| 31. What is the pitch (slope) of the roof? | |
| 32. How many brick courses high is the window to the private lounge? | |
| 33. What is the bulkhead beam in the multimedia room lined with? | |
| 34. How many brick courses high are the ensuite windows? | |
| 35. How many brick courses above floor level is the bottom of the window to the multimedia room? | |
| 36. What is the floor-to-ceiling height? | |
| 37. What is the finish to the eaves? | |
| 38. What cladding does the gable above the garage door have? | |

Section 4 – Electrical plan

On the electrical plan provided, find the following information and write it in the spaces provided. Note that some information asked for may not be shown on the electrical plan provided.

| | |
|--|--|
| 39. How many lights are there in the living room? | |
| 40. Where is the switch for the kitchen lights located? | |
| 41. How many mm above floor level is the GPO for the fridge? | |
| 42. How many lights are there outside the house? | |
| 43. How many GPOs are there in the garage? | |

End of Assessment 2



READ AND INTERPRET PLANS AND SPECIFICATIONS CERTIFICATE II IN BUILDING AND CONSTRUCTION (PATHWAY – PARAPROFESSIONAL) CPCCCM2001A

LEARNER'S GUIDE

DESCRIPTION

This learner's guide will take you through the process of learning how to find and interpret information in typical drawings, plans and specifications for single-dwelling residential construction projects. It contains a mix of content and hands-on activities that support the unit CPCCCM2001A *Read and interpret plans and specifications* 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:

- types of drawings used and the kinds of information they show
- title panels and the information they contain
- dimensions – how they are shown and how to read them
- paper sizes and common scales used
- abbreviations and symbols found on drawings
- written specifications and documentation.

You will also learn how to find specific information on different types of drawings. Assessment activities are also included.

EDITION

Edition 1, 2012

TRAINING PACKAGE

Construction, Plumbing and Services – CPC08

COURSE/QUALIFICATION

Certificate II in Building and Construction (Pathway – Paraprofessional)

UNIT

CPCCCM2001A *Read and interpret plans and specifications*

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.



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