Installation requirements

KITCHEN AND BATHROOM CABINET MAKING

Supporting:

LMFKB3002A
Determine requirements for installation of cabinets

Learner guide

Developed in 2011-2012 for the WELL Program

Installation requirements

Learner Guide

This unit is also available in an e-learning format, which contains additional photos, interactive exercises and a voice-over narration of the text. It can be viewed on CD-ROM, or live on the web at:

http://www.kbcabinetmaking.com.au/

Developed by Workspace Training for the 2011-2012
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Kitchen and Bathroom Cabinetmaking resource development project

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About this resource

This learner guide is one of 11 learner guides developed for the *Kitchen and Bathroom Cabinetmaking* project, funded by the WELL Program in 2011-2012. The guides are aligned to the following core and elective competencies from the *Certificate III in Cabinetmaking (Kitchens and Bathrooms) LMF32109*:

LMFKB2001A	*Prepare for cabinet installation*
LMFKB3001A	*Identify processes in kitchen and bathroom*
LMFKB3002A	*Determine requirements for installation*
LMFKB3003A	*Check and measure fit of cabinets*
LMFKB3004A	*Conduct on-site adjustments to cabinets*
LMFKB3005A	*Fabricate cabinets for the built-in environment*
LMFKB3006A	*Install fitted cabinets and components*
LMFFM3006B	*Install furnishing products*
MSAENV272B	*Participate in environmentally sustainable work practices*
MSAPMOHS200A	*Work safely*
MSAPMOPS101A	*Make measurements*

The purpose of the guides is to help apprentice cabinetmakers acquire the background knowledge needed to satisfy the theoretical components of these units. However, they are not designed to replace the practical training necessary to develop the hands-on skills required. Learners will still need to receive extensive on-the-job training and supervision before they will be ready to be formally assessed in these units.

E-learning version

All of these units are also available in an e-learning format, which contains additional photos, interactive exercises and a voice-over narration of the text. The e-learning version can be viewed live on the web at:

http://www.kbcabinetmaking.com.au/

The web version can also be purchased on a CD at a cost-recovery price from the project developer:

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Acknowledgements and disclaimer

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Introduction

A job that's done properly is a bit like a neat and tidy home – often people don't even notice, although everyone appreciates the results. But when something isn't quite right – everyone notices, and some people can get quite irritated by it.

Kitchen and bathroom installations are the same. When the cabinets fit perfectly, and the doors hang square, and the drawers run smoothly, and all the parts do what they're supposed to do, the end users will be happy. They'll appreciate the quality workmanship, without even realising the effort that's gone into it.

As the installer, though, you know the effort that's required. A successful installation requires careful planning and the ability to adapt the components you're installing to the actual site conditions. It also requires a good understanding of how the other trades fit in with your part of the job, so that in the end all of the elements work together.

In this unit, we'll discuss the steps involved in assessing the site and taking into account the features that will affect the installation job. We'll also examine the sorts of things you should look for and the process of recording them.

The unit is designed to follow on from *Processes in kitchen and bathroom projects* (LMFKB3001A). In that unit we took a broad view of the processes involved in installing a kitchen or bathroom and the main factors that help to produce a quality job.

Working through this unit

There are three sections in this unit:

- Site assessment
- Construction features

- Services and design.

Each section contains an *Overview*, an *Assignment*, and several *Lessons* which cover the content material. Your trainer may ask you to submit the assignments as part of your assessment evidence for the unit. You will find hard-copy answer sheets for these assignments in the separate Workbook.

Electronic 'Word' versions of the answer sheets for Assignment 2 and Assignment 3 are available on the website for this resource, at:
http://www.kbcabinetmaking.com.au/

The electronic versions can be completed on-screen and sent to the trainer either as:

- a printed hard copy, mailed through the post
- an electronic file, emailed as an attachment.

Note that Assignment 1 asks you to draw a plan and elevation of a kitchen design, so there is no template answer sheet for this exercise.

Section 1

Site assessment

Overview

The site assessment is a crucial stage in every installation project. This is where you check measurements, confirm the design details with the client, and note all of the features of the site that will affect your installation methods.

In this section, we'll discuss the process of carrying out a site assessment. We'll also cover basic plan reading skills, and the site safety requirements that you're likely to encounter.

Completing this section

The assignment for this section is designed to give you practice in sketching a simple on-site plan, showing the layout and positioning of cabinets and other features. Have a look at Assignment 1 on page 11 to see what you'll need to do to complete it.

There are also three lessons for this section:

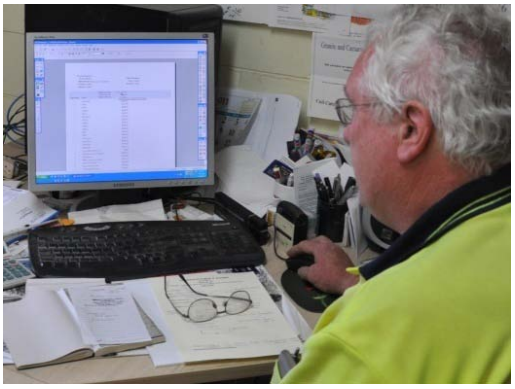
- The assessment process
- Reading plans
- Site safety.

These lessons will provide you with more background information on the processes involved in carrying out a site assessment.

The assessment process

Below are the typical steps involved in organising and carrying out a site assessment.

1. Read through the design brief and project plans



Before you go out to the site, you should familiarise yourself with the details of the project. We covered the basic elements of the design brief and project plans in the following lessons from the unit *Processes in kitchen and bathroom projects*:

- Developing the design brief
- Developing the project plans.

2. Arrange to meet the client on-site

It's always best to see the client on the job when you carry out the site assessment. This allows you to go through the design details with them and talk about any issues that might need to be clarified.

It also lets you confirm that the client's vision of the finished project matches your own understanding of the job, and that you're both in agreement on the project schedule.

3. Carry out the site assessment

There are lots of things that need to be checked and noted when you carry out the actual assessment. These include the structural features of the building, design of the room, access to the work area, and the positions of power outlets and plumbing fittings.

While you're there, you should also take exact measurements of the areas where cabinets and bench tops are to be installed. These include the heights and widths of walls, angles between surfaces, and checks on how level the floor is and how plumb the walls are.

In addition to these physical aspects of the project, there are various scheduling details that need to be confirmed. For example, you need to know when the plumber and electrician will have finished 'roughing in' their pipes and cables in readiness for the cabinets.

You also have to make sure that no other workers will be doing jobs that might get in the way or spoil the quality of your installation work.

It might not be possible to do all of these things in the one visit. This is particularly the case if your initial site assessment is carried out before other trades complete work that has to be done in advance of your installation.

We'll look in greater detail at some of these aspects of the site assessment throughout the rest of this unit.

Learning activity

There's more to a site assessment than just checking out the kitchen or bathroom you'll be working in. You also have to look to the future and ask:

- Who else will be working on site when I come back to do the installation?
- What things might be happening that would affect my work?

See if you can list some of the possible problems if the following work was being carried out when you arrive with the cabinets and your installation team:

- The front driveway is being excavated for a concrete pour
- A floor sander will be sanding the dining room, which adjoins the kitchen.
- The drainer is digging a trench across the property to lay the drainage pipes.

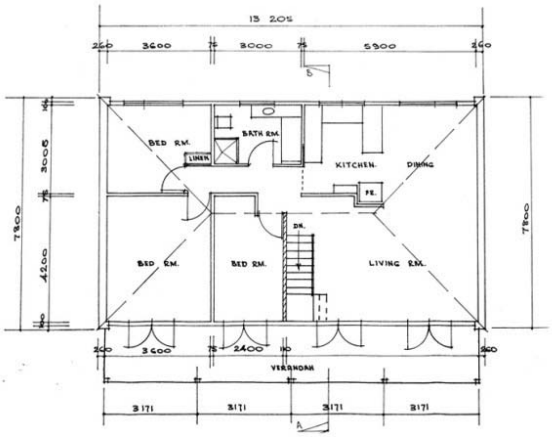
Share your answers with your trainer and other learners in the group.

Reading plans

The complete set of **working drawings** for a building is generally called the **plans**. These technical drawings present particular two dimensional **views** of the building. The main drawings that make up a set of plans are shown below.

Plan view

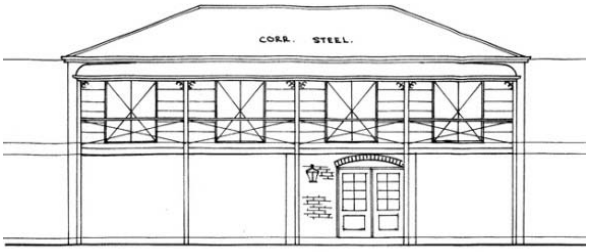
The **plan view** shows what a structure looks like from above. That is, it gives you a 'bird's eye view'. The most common example of this type of drawing is a **floor plan**.



However, in a full set of drawings you'll also get a site plan, roof plan, electrical plan and various other specialised plan views.

Elevation

An **elevation** is a side-on view of the structure. There are generally several elevations shown in building drawings, because different sides will have different design features.

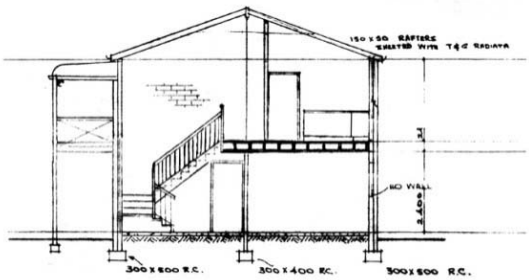


EAST. ELEVATION

The elevations are marked according to the direction that side is facing, such as 'North Elevation' or 'East Elevation'.

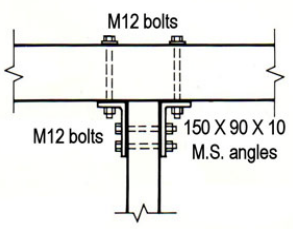
Section

A cross-sectional drawing is called a **section**. This may be a cross section through the entire structure, or a particular part of the structure.



Detail

Detail drawings are close up views that provide construction specifications or extra information on a particular part of an object. They are commonly drawn as a section through the object.

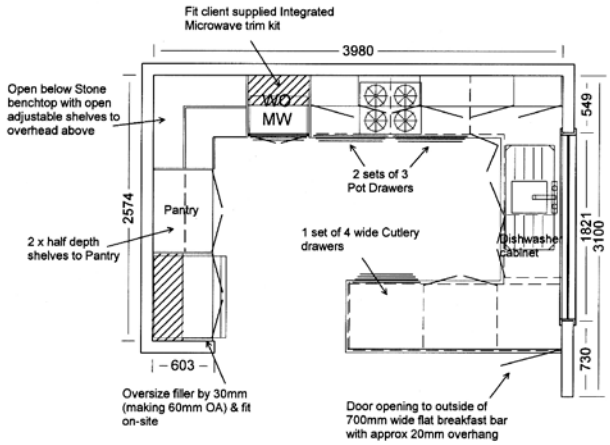


Learning activity

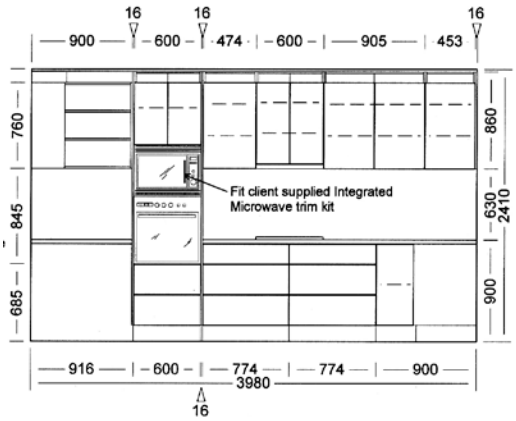
As a kitchen and bathroom specialist, you'll have your own detailed plans showing the cabinets, bench tops and other features included in the installation. These drawings will probably have been generated in a computer aided design (CAD) software program, which will also provide 3D views of the project for the client to see.

Have a look at the example below of a plan, elevation and 3D view of a kitchen. Examine the way particular features appear in each of the different views. For instance, look closely at the cook top in the three views, and then the cabinets above the cook top.

The ability to mentally rotate images and understand what they look like from above, from the side and in 3D is very important in plan reading.



Plan



Elevation

3D

Site safety

Safety requirements for different building sites vary, depending on the size of the jobsite and the types of work being carried out. For example, a small renovation in a person's home will be quite different from a high rise commercial development.

Obviously, the need to work safely never changes – your number one concern should always be to finish the day as fit and healthy as you began it. But the compliance requirements will vary according to the scale of the project and the range of activities going on around you.

Personal protective equipment

Some items of personal protective equipment (PPE) are generally only needed when you're using a certain machine or doing a particular task. These include dust masks, safety glasses and gloves. Your company will have policies on these items of PPE, and will specify their use in the safe operating procedures (SOPs) for those activities.

Other items of PPE are general site requirements. If you normally work in a small workshop, the only site requirement may be to wear steel capped boots (also called safety boots) when you're out on the factory floor. In a noisy area you might also be required to wear hearing protection.

However, when you go to the client's jobsite to carry out a measure-up and site assessment, there may be other requirements you need to comply with. On a large project you may have to wear a hard hat, high visibility vest and safety boots before you're allowed to walk on-site.

White card

The White Card is the accreditation you receive from WorkCover once you've completed the **Construction Induction Certificate**. This short course is compulsory for all people who work on building sites.

Previously, different states and territories around Australia used different colours for the cards they issued. So you may still hear people calling it the **Green Card** or referring to it as some other colour.

Whenever you're on-site you should carry the White Card with you, just in case you're asked to produce it by a builder or inspector. If you're going to a commercial jobsite, you're sure to be asked for it at the site office when you sign in.

Learning activity

The following signs are often found on commercial building sites. The blue ones apply to PPE that must be worn by everyone who enters that area. The other signs provide information and hazard warnings.

Do you know what they all mean? Ask your supervisor or trainer to explain any of the signs that you're not sure about.







Assignment 1

Below is a 3D view of a kitchen. Your task is to provide simple line drawings of the kitchen in the following views:

- Front elevation of the wall containing the window.
- Plan view of the room, showing the floor cabinets only.

You are not required to mark in any dimensions, but try to keep the scale as accurate as possible.

You may do the drawings by hand or on a computer. If you use a computer, there is no need for a specialised drawing program – you can use any simple program that generates lines and shapes.

Note that the objective of this assignment is to practise 'seeing' different views of a room in your mind's eye – it's not to produce architectural drawings. This ability to do simple sketches of a room is a skill that you will use constantly when you carry out site assessments and prepare cabinets for installations.

Completing this assignment

You will find a page relating to this assignment in your Workbook.

Section 2

Construction features

Overview

Although your work on-site is generally carried out after the building has reached **lock-up** stage and the wall linings have been installed, you still need to understand how the structure has been put together and what materials are used.

This is because different materials require particular fixings and installation techniques. The structural system used will also affect the way the other trades do their work, including the methods used to run plumbing pipes and electrical wires.

In this section we'll look at some basic building principles and materials. We'll start with floor systems and then examine different types of walls. In particular, we'll cover the structural elements most relevant to your installation work on-site.

Completing this section

The assignment for this section is designed to test your knowledge of the main terms used for structural members in a timber framed building. Have a look at Assignment 2 on page 23 to see what you'll need to do to complete it.

There are three lessons for this section:

- Floor systems
- External walls
- Other structural features.

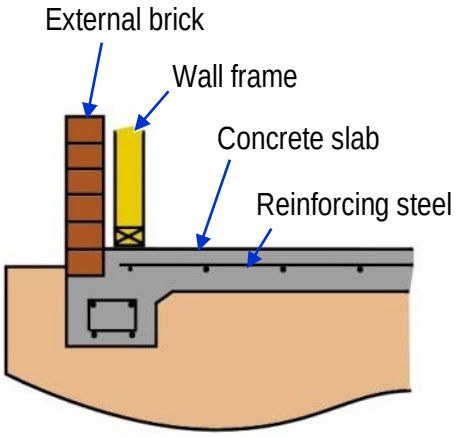
These lessons will provide you with background information on some of the standard building practices that you need to be familiar with in your work.

Floor systems

Set out below are the main types of floor systems used in dwellings.

Concrete slab

Concrete slabs can be constructed on the ground or suspended in upper floors. They are reinforced with steel mesh and may also have beams incorporated where extra strengthening is required.



Section through on-ground concrete slab

Floor coverings over concrete are many and varied. In a kitchen, some products are glued direct to the surface, such as ceramic tiles, slate and parquetry. Others, such as vinyl and carpet, generally have a foam underlay installed between them and the concrete.

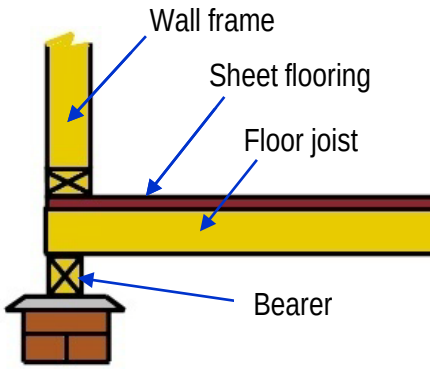
Timber strip flooring is also commonly used in the kitchen. Solid boards can be installed on top of plywood sheets or timber battens fixed to the concrete. Or a 'floating floor' can be used, made of laminated panels that 'float' on a foam or rubber underlay.

In the bathroom the choice is more limited, because it requires waterproof or water resistant coverings. Most floors are finished with ceramic tiles, which are installed on a bed of mortar. This allows the tiler to put a 'fall' or slope in the floor towards the waste pipes. Other coverings sometimes used include slate, glass, and even timber when special installation methods are used.

Timber or steel framed floor

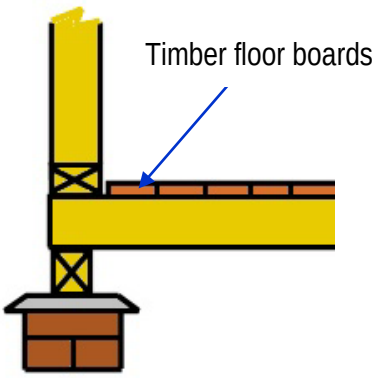
Most raised floors in domestic buildings use plywood or particleboard sheets supported by a frame of timber or steel **joists**.

This method is called **platform flooring**, because it allows the builders to work on a platform while they stand up the wall frames and fix them in position.



Platform floor

An alternative method to platform flooring is called the **cut-in** or **fitted floor**. This is the traditional technique used in cottage construction when floors were generally made of tongue and groove timber boards. The walls sit directly on the floor joists and are erected before the floor boards are installed.



Cut-in floor

Although it's harder work for the builders, it has the advantage of allowing the roof to be covered and waterproofed before the floor goes down. So the technique is still used for high quality solid timber strip flooring.

Particleboard and plywood sheet flooring are both examples of **structural flooring**, because they are designed to take the floor loads and withstand stresses in the building. The same applies to timber boards when they're fixed directly to joists.

Coverings put on top of structural flooring are not designed to play a structural role. Their only function is to provide a decorative floor surface. They include all of the same products used over concrete, such as vinyl, carpet, parquetry, timber boards and floating floor products.

In bathrooms and laundries the most common covering is ceramic tiles, which are bedded down in the same way as for concrete. However, because these are **wet areas**, the sheet flooring and walls need to be waterproofed first to stop any moisture from seeping through. Some builders prefer to use compressed fibre cement sheeting under tiles instead of particleboard, because of its extra resistance to moisture.

Learning activity

The best way to improve your understanding of the different floor systems is to find buildings that use these systems and look closely at the construction methods. You might be able to do this if you're involved in on-site measure-ups. Or there may be a new estate under development nearby that you can visit. If your own home has a raised floor, you can go underneath and have a look.

Try to get access to the subfloor area, particularly under the kitchen and bathroom, to look either a raised concrete slab or timber framed floor.

Take photos from the underside of the floor if you can. Share the photos with your trainer and other learners in your group.

External walls

The most common types of external wall structures used in domestic buildings are described below. We will discuss internal walls in the next lesson, under the heading: *Other structural features*.

Timber frame

Timber framing is a very efficient method of construction. The wall frames support the roof and ceiling, as well as providing a fixing point for the wall linings.

Traditionally, wall frames were built on-site by the carpenters and stood up in position as they were made. These days they are nearly always prefabricated in a frame and truss plant and delivered to the site together with the roof trusses.

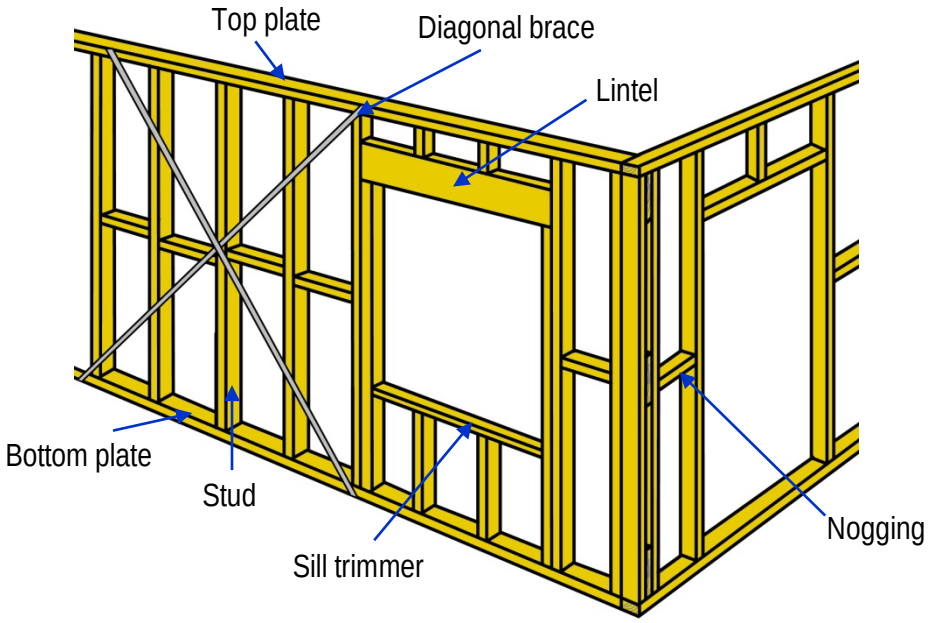
The photo above shows a typical upper storey timber frame. The sheeting you can see at each end of the wall frame provides bracing for the wall, and helps to resist wind forces that push against the sides of the building.

The **cladding** used on timber framed homes is most often some form of weatherboard, made from fibre cement, aluminium or a durable timber. Sometimes plywood or fibre cement sheeting is used instead of weatherboard. In all cases, the cladding is generally nailed to the timber wall frame with a waterproofing membrane in between.

Interior linings are typically **plasterboard** sheets, which are painted after installation. Some owners like to use timber lining boards or plywood with a fancy veneer on feature walls. The lining is glued and nailed to the wall frames.

Steel or aluminium framing is sometimes used in place of timber. The components are made in the form of a 'C' channel and fastened together with screws. Although metal framing is used more in some areas than others, it has a very low percentage of the overall market.

Below are the names of the main components in a wall frame.



Wall frame components

Brick veneer

A brick veneer wall is basically a timber frame (or steel frame) with a brick skin on the outside. That is, the ceiling and roof are still supported by the frame, with the brickwork performing the function of an external cladding.

Brick veneer construction was developed in Australia, and has become far and away the most popular construction method for residential dwellings.

Windows and doors are generally fixed into the timber frame before the bricklayers start work. This enables them to finish their brickwork accurately to the **window reveals** and **door jambs**.

The brick walls are tied back to the wall frames with **veneer ties**. This stops the brick walls from moving in or out, and also provides extra support to the wall frames.

Full brick

Full brick buildings have two skins of brickwork, with a gap of 50 to 60 mm in between. The purpose of the gap is to stop moisture from absorbing through the outside wall to the inside. The two skins are tied together with **cavity ties** to improve the stability of the walls.

Full brick is also called **cavity brick.** It is a form of **solid masonry** construction, which also includes concrete blocks and stonework. Masonry walls can be left natural, or they can be finished with a plaster or cement render and then painted.

Learning activity

Once an internal wall has been painted, it's sometimes hard to tell at a glance whether it is made of solid plaster over masonry, or plasterboard sheets fixed to a timber frame. But there is an easy way to find out – just tap the wall with your fingers. If it's got the drummy sound of plasterboard on a hollow frame, then that's what it is.

You can also use this technique to find out exactly where the studs are in a wall frame. Tap along the wall with your fingers until the drummy sound becomes deadened. Chances are that's where the stud will be.

But beware! Don't forget that the wall frame will have noggings, which might also deaden the sound. And also keep in mind that sometimes the plasterboard lifts away from particular studs because either the glue didn't stick properly or the stud wasn't perfectly straight – which means that it might sound hollow right across the face of the stud.

The best way to reduce this problem is to press against the wall with your other hand, so that you push the plasterboard hard against the studs while you're tapping.

Of course, the high-tech alternative to this technique is to use a stud finder. This is a hand-held electronic unit that measures the electrical capacitance in the wall and detects where the changes are. Some newer stud finders send out a radar signal.

But the old fashioned technique is still a very handy one to know. Try it out for yourself on a few plasterboard walls.

Other structural features

Now that we've looked at floor systems and external walls, we can talk about the difference between **load bearing walls** and **non load bearing walls**. Then we can discuss the positioning of openings and the effect they have on the structural integrity of the walls.

Load bearing walls

Load bearing walls support the weight of the structure above them. In the case of **external** load bearing walls in a single storey house, the weight comes from the ceiling and roof. In a two storey house, it would also include the first floor.

In some single storey houses, the roof is supported by some of the **internal walls** in addition to the external walls. The wall frame in the photo at left is load bearing because the roof truss above it is resting directly on the top plate, over the doubled-up studs.

It's worth remembering that the size and grade of studs used in load bearing timber framed walls are designed specifically for the loads they need to withstand. So any damage to a stud will have an effect on its ability to do its job.

This includes notching or drilling holes to run electrical cables or plumbing pipes. Building codes specify the amount of notching and drilling permitted, so licensed plumbers and electricians will know what is acceptable. But as an installer, you should always remember that when you're working around load bearing walls, you need to minimise any damage to the studs.

Non load bearing walls

Non-load bearing walls do not support a load from above. In other words, if the internal wall is not bearing the weight of the roof or floor above it, then it is **non load bearing**.

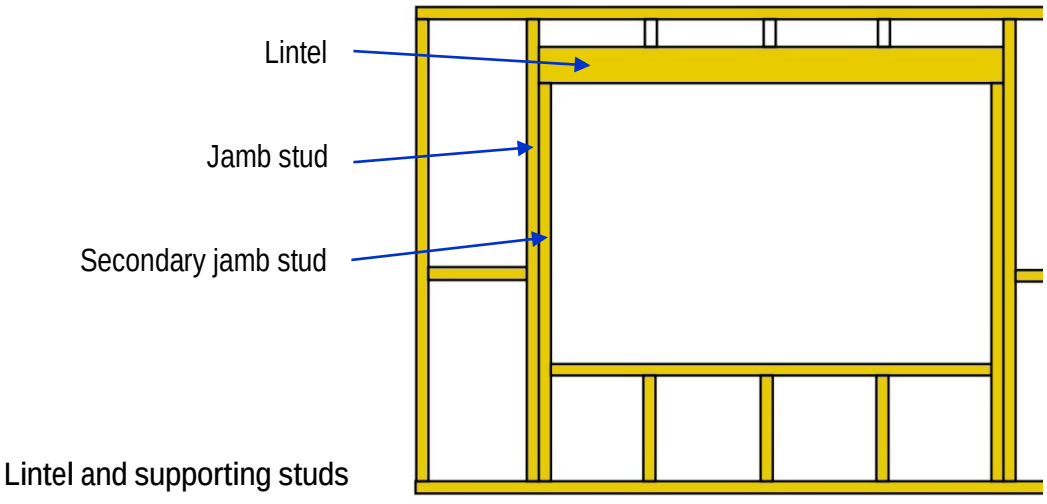
Some modern homes use roof trusses that span the full width of the building. This means that only the external walls bear the load of the roof and ceiling, so all internal walls are non load bearing. These internal walls are often called **partition walls**, because their only function is to partition off the rooms in the large internal space.

Older houses with roofs that were built stick by stick by the carpenters on-site are far more likely to have some internal load bearing walls and some partition walls.

Positioning of openings

You can probably see that before you create an opening in any wall, it's essential to know first how much load the wall is supporting. Windows in load bearing walls typically have a **lintel** above the opening, with **secondary studs** to help support the lintel.

Renovation jobs that require a new opening in a wall, or a widening of an existing opening, or the removal of the entire wall, generally have plans drawn up by an architect or engineer. The plans specify any additional structural work, such as beams and columns, that might be needed to support the load above the opening.



Lintel and supporting studs

Learning activity

There's no better way to understand the principles of load bearing and non load bearing walls than to have a look at them in action. Try to find a timber or steel framed building under construction, with the wall and roof framing up, but before the bricklayers have got too far on the walls.

It's likely that the building will have a trussed roof, because that's the most economical way to build these days. Have a close look at the bottom chord of the truss as it passes over the non load bearing internal wall frames. You'll see that the bottom chord doesn't rest on these walls at all – it's only bearing point is at each end.

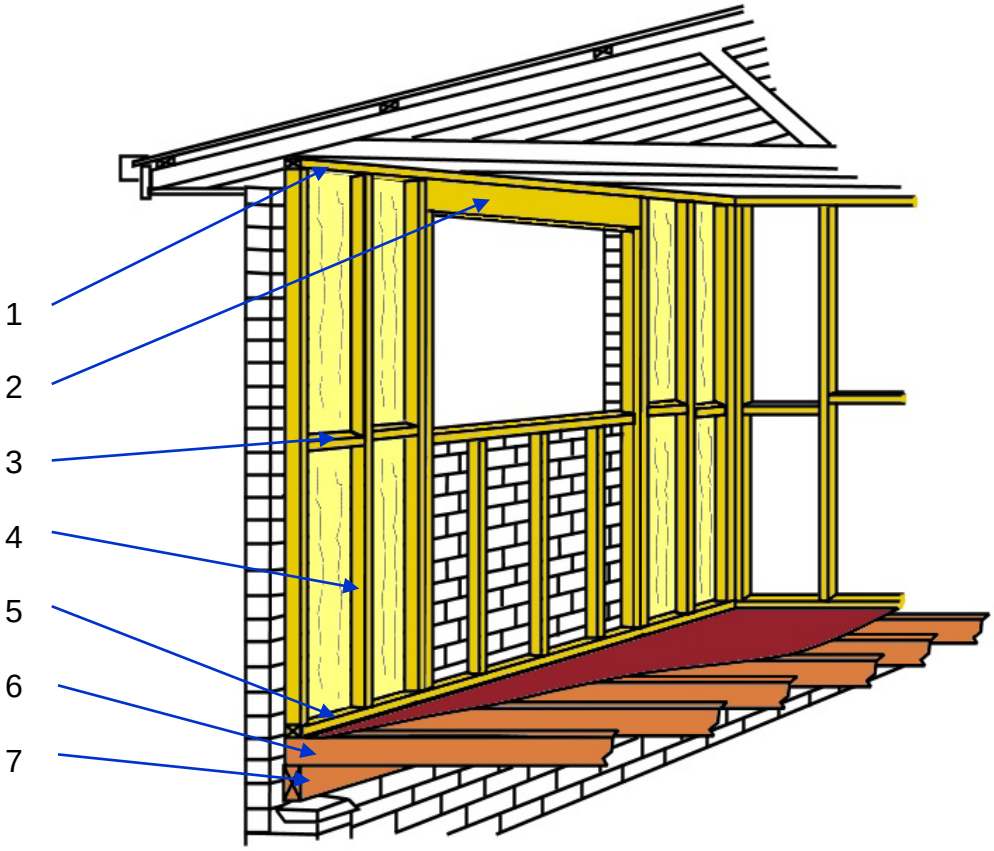
Now look for internal load bearing points in the building, that is, points where a wall is supporting part of the roof or the second storey floor above. What is holding up the load? Is it a wall frame or a beam? Is there a column involved?

Take digital photos and share them with your trainer and other learners in your group.

Assignment 2

The drawing below shows a section through a building.

1. Name each of the parts that are numbered.



2. What type of wall structure does this drawing represent?

Completing this assignment

You will find a hard-copy answer sheet for this assignment in your Workbook. There is also an electronic version of the answer sheet on the website. See the *Introduction* for more details on how to access this 'Word' file (page 2).

Section 3

Services and design

Overview

We've talked briefly about the various trades involved in an installation in the unit: *Processes in kitchen and bathroom projects*. Now we'll continue that discussion in relation to the tradespeople you may have to liaise with when you carry out the site assessment.

We'll also cover basic design principles, and in particular, the 'kitchen work triangle'. Even if you're not directly involved in the initial design of the kitchen, it's good to have an understanding of these principles.

This allows you to see the reasoning behind the layout that has been used for the various cabinets, appliances and other features. It also helps you to pick up any problems that might suddenly become obvious during installation that may not have been considered in the original design.

Finally, we'll look at how you can record information quickly and accurately on-site by doing a sketch of the floor plan and other views of the project.

Completing this section

The assignment for this section will introduce you to the process of carrying out a site assessment. Have a look at Assignment 3 on page 32 to see what you'll need to do to complete it.

There are also three lessons for this section:

- Services
- Design concepts
- Recording information.

These lessons will help to provide you with a fuller picture of the site requirements you need to be aware of when you carry out an assessment in preparation for an installation.

Services

All kitchens and bathrooms require power and water. So it's likely that you'll be liaising with an electrician and plumber on just about every installation project you do, with the exception maybe of very small renovation jobs.

Some projects incorporate other services as well, such as gas, phone lines and air conditioning. In these cases there may be other technicians you have to work with when you plan and carry out an installation.

Set out below are the main people involved in installing these services.

Plumber

The plumber will rough in the water pipes before the wall lining goes on and run the waste pipes through the floor.

Once the cabinets have been installed and tiling or other wall linings are finished, they will come back to connect up the taps, sinks, toilets and other plumbing fixtures.

Gasfitter

Many clients prefer to cook with gas rather than use electric stoves and ovens. Gas is also often used for heating purposes. If the project involves gas, a licensed gasfitter will need to do that part of the installation.

Some plumbers are also gasfitters, so when both services are required a plumber/gasfitter is generally contracted.

Electrician

Like the plumber, the electrician will also come on-site before and after the cabinetry installation. They will rough in the wiring first, and then return later to connect up the fittings and appliances.

These may include power points, lights, exhaust fans, ovens, cook tops and air conditioners.

Air conditioning technician

Ducted air conditioning systems use large ducts to carry warmed or cooled air around the house. In a split system the technician might install the warm air ducts under the floor and the cool air ducts above the ceiling.

Outlets can be in the ceiling, floor or wall, depending on the system and available space.

Cabling contractor

Phone lines and data cables need to be installed by a contractor approved by the service provider.

Where possible, contractors prefer to run the cabling before the internal wall linings are installed. They can then come back to connect up the phone points or data sockets.

Learning activity

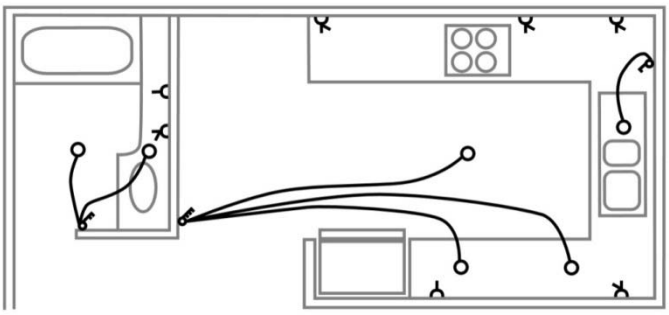
The different trades often have their own specialised plans showing the services they are providing. Below is an electrical plan for a kitchen and bathroom.

See if you can answer the following questions:

1. How many double power points are in the bathroom?
2. How many single power points are in the kitchen?
3. How many ceiling lights are in the kitchen?

Symbols	
Single GPO	
Double GPO	
Ceiling light	
Light switch	

GPO = general power outlet



Electrical plan

Design concepts

The project plans and design brief for a job should tell you exactly where the appliances and cabinets need to go. These may have been developed by an architect or builder in consultation with the client, or you may have been involved directly in their development.

The floor plan will set out the positions of cabinets, appliances and bench tops. The elevation for each wall will indicate the heights of shelves and overhead cupboards. For technical details not shown on the drawings, such as fixing requirements and materials, the written specifications should help.

If any important information isn't provided in these documents, it's always best to find out before you go ahead with that part of the job. For example, the builder or appliance sales centre should be able to give you information sheets for each of the appliances, which will indicate exact dimensions, ventilation requirements and other installation details.

The kitchen work triangle

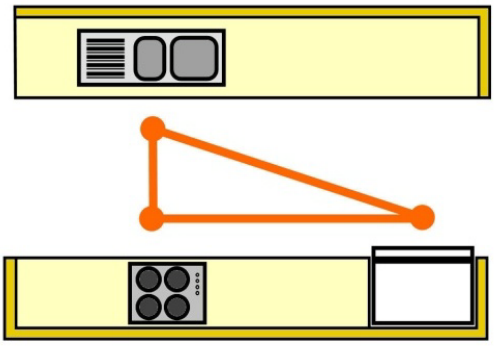
Even if you're not directly involved in the initial design of the kitchen, it's good to have an understanding of design principles as the on-site installer. This allows you to see the reasoning behind the layout that has been used for the various cabinets, appliances and other features. It also helps you to pick up any problems that might suddenly become obvious during the installation process that had not been considered in the original design.

The **kitchen work triangle** is a design principle used widely by designers. Its basic concept is that the sink, refrigerator and cook top are focal points in every kitchen, and therefore form a 'work triangle'. The optimum distance between these points should be between 1200 mm and 2700 mm.

Below are four common floor plans that use the kitchen work triangle as their basis.

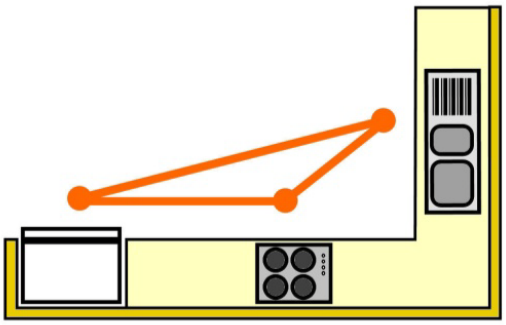
Galley plan

This plan allows cleaning, cooking and preparation to be kept separate. And because there are no return corners, all of the space underneath the bench tops is easily accessible.



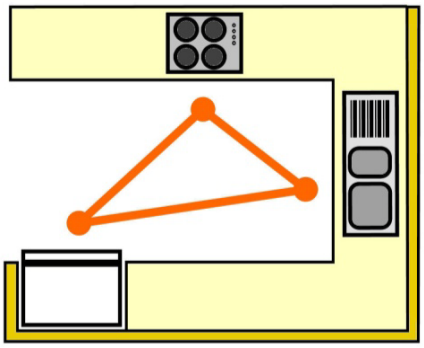
L shaped plan

The L shaped plan is sometimes called the **homestead** or **country kitchen** plan. This is because it provides plenty of space to put a kitchen table in the middle of the room.



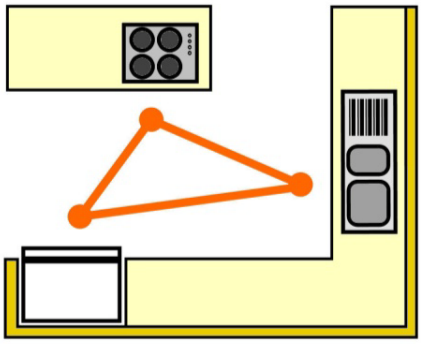
U shaped plan

This is the most popular design in modern homes. It is generally located at one end of a family room, with one of the benches used as a breakfast bar or servery.



Island plan

The big advantage of this plan is that two cooks can work together without getting into each other's way. In some designs the island bench also acts as a breakfast bar.



Learning activity

Each of the four designs shown above has its own advantages, and can be the most appropriate plan to use under particular circumstances. However, each one also has potential disadvantages, depending on the layout of the home and the needs of the occupants.

See if you can think of one disadvantage for each of these plans. Describe the problem and situations where it might occur. Share your answers with your trainer and other learners in your group.

Recording information

Building plans often specify the overall measurements for kitchen and bathroom bench tops and cabinets. But you can't rely on them for your actual working dimensions. The only sure way to be sure that your units are going to fit properly and finish professionally is to physically check all the relevant measurements on site.

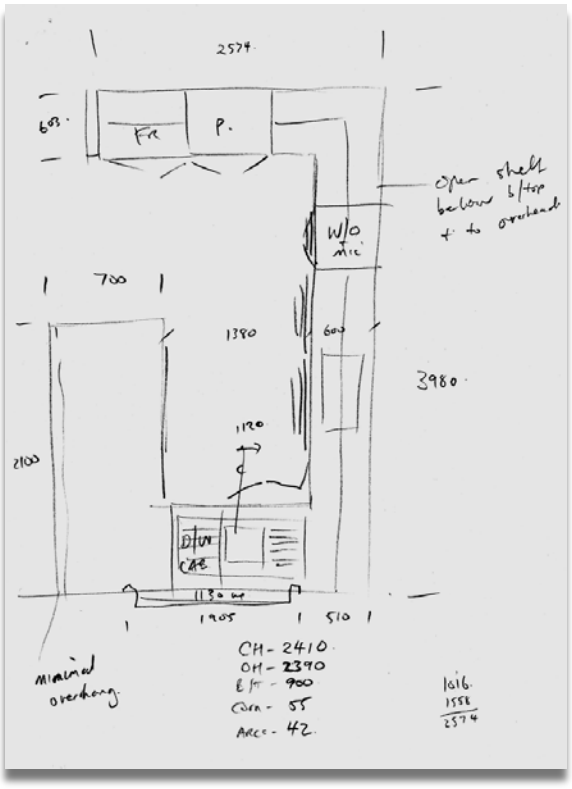
A good way of recording measurements and construction details is to sketch the floor plan, filling in the measurements as you go. Then do the same for the elevations.

Set out below are the sorts of details that your sketches should contain.

Floor plan

The floor plan should include:

- doors and windows
- water pipes and waste pipes
- electrical outlets for appliances and power points
- vents and other features.



Elevation

The elevations should show each wall where cabinets or bench tops are to be installed. The same details can be included as for the floor plan.

Learning activity

Does the floor plan above look familiar? It's actually the site sketch of the kitchen design we looked on page 8. These are the layout details that the installer recorded before he physically started the job.

Ask your work supervisor whether you can have a look at examples of sketches that your installers have done on the job. Have a look at the measurements noted and the sorts of details recorded. If there are any abbreviations you don't understand, find out what they mean.

Assignment 3

Let's assume that you're going to renovate the kitchen or bathroom in your own home, or in the home of a friend or relative. Your task is to carry out a site assessment and collect the information you'll need to prepare for the project.

For this assignment, there is no need to take detailed measurements on the positions of power and water outlets, or to check floor levels and wall angles. We will cover these aspects in later units.

Completing this assignment

You will find a hard-copy template for this site assessment checklist in your Workbook. There is also an electronic version of the template on the website. See the *Introduction* for more details on how to access this file (page 2).

When you have completed the checklist, you should take several digital photos of the kitchen or bathroom to submit as part of the assignment.

Site assessment checklist

The checklist template in your Workbook will ask you to provide the following details:

Room

1. **Type**: State the room that the site assessment is being carried out on – e.g. kitchen, main bathroom, ensuite bathroom.
2. **Plan**: Draw a plan view of the room, showing all doorways and windows. Mark the lengths of the walls, as well as door and window openings.

   (Note that there is no need to show cabinets, appliances or other installations on the plan. For the purposes of this exercise, we will assume that all fittings will be removed as part of the renovation.)

Floor

3. **Sub-floor structure:** Describe the sub-floor – e.g. concrete slab on ground, suspended concrete slab, timber joists with particle board sheet flooring.

4. **Floor covering:** Describe the floor covering – e.g. solid timber strip flooring, cork tiles, vinyl tiles, ceramic tiles.

Walls

5. **Wall structure:** Describe the internal wall construction – e.g. cement render on brickwork, timber frame lined with gyprock.
6. **Wall finish:** Describe the surface and finish – e.g. ceramic tiles fixed to villaboard, painted gyprock, painted cement render.
7. **Windows:** Describe the type of windows – e.g. timber, aluminium.

Ceiling

8. **Ceiling structure:** Describe the ceiling structure – e.g. gyprock fixed to timber joists, suspended concrete slab.

Electricals

9. **Lights:** State the number and types of lights – e.g. one 1200 mm double fluorescent fitting in middle of ceiling, 4 recessed down lights in ceiling.
10. **Power points:** State the number and location of power points – e.g. two double power points over bench top plus one single power point under sink (for dishwasher), one double power point inside vanity cabinet.

Plumbing

11. **Outlets:** State the number and types of outlets – e.g. hot and cold outlets over kitchen sink plus cold outlet under bench top for dishwasher.
12. **Wastewater:** Describe the number and types of wastewater pipes – e.g. one sink/dishwasher outlet, one vanity basin plus two floor wastes plus one toilet.

Hazardous substances

13. **Hazardous substances:** State whether you think there might be any hazardous substances, such as asbestos fibro wall linings or lead-based paint

Site access

14. **Room location:** Describe the room location in the building – e.g. ground floor at rear of the house, adjoining the living room in a second floor apartment.

15. **Room access:** Describe the access way, and any issues that might cause a problem – e.g. direct access from backward through rear sliding door (900 mm wide), access through two flights of stairs with middle landing (900 mm wide).

16. **Vehicle access:** Describe the access for delivery trucks and tradespeople's vehicles – e.g. side driveway with plenty of parking at rear of house, street parking only with 2 hour limit.