Building and Construction

Plan and organise work

Learner Guide

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Planning and Organising Construction Work [1]

Work planning is the preparation and implementation of a logically sequenced list of tasks. It is important that adequate time is set aside for planning a project prior to commencement. This will ensure the correct materials are ordered, correct equipment is used, correct methods are used and the correct procedures are followed. Work organisation can be described as the ability to carry out a work plan efficiently.

Planning and organisational skills are important skills to have in the construction industry. As an employee it is important that you are able to plan and organise your own workload to complete tasks efficiently. As you progress through your career in the construction industry you may find yourself working as a contractor or project manager. These positions require greater planning skills due to the increased complexity of the job. Consideration needs to be given to such factors as:

> sequencing of trades
> output of sub-contractors/tradespeople
> management of delays such as inclement weather, industrial action
> management of disruption of supply and delays in necessary approvals
> management of cost factors such as labour, plant, equipment and material.

As an employer or contractor these skills are even more important as effective project planning and organisation of workloads will lead to:

> more accurate estimates
> the ability to prioritise projects
> the ability to deal with unforeseen circumstances
> increased productivity
> increased income
> a reduction in waste materials
> the elimination of confusion
> all workers being aware of what is happening
> increased efficiency
> identification of various ways in which a task can be done that enables the construction worker to select the way that best suits them and the current situation
> identification of potential hazards
> a logically sequenced completion of all tasks.

[1] Source: National VET Content, as at https://nationalvetcontent.edu.au/alfresco/d/d/workspace/SpacesStore/11cb7588-7982-4bf1-a8dd-6c7fc2b55119/index.htm?guest=true, as on 15th June, 2014; HSC Online, as at http://www.hsc.csu.edu.au/construction/other_units/compulsory/bcg1002a/bcg1002a/bcg1002aedit1.html, as on 16th June, 2014; Construction Industry Training Board, as at http://www.mitac.org.au/res/CPC08Resources/bcgcm1003b.pdf, as on 16th June, 2014.

The work organisation plan should be carefully followed. It can be modified if the need arises but modifications should be made with due consideration to the above information.

Remember a well-organised work program will be more economical because it makes better use of materials, labour and equipment.

Throughout this unit of competence the trainee, with the assistance of the trainer, will consider the importance of planning and organising workloads, that is the importance of developing a logically sequenced work program, and safely implementing all aspects of it in accordance with Occupational Health Safety and Welfare (OHS&W) requirements.

Many of the units studied so far have emphasised a range of organisation skills, practices and procedures. The major purpose of this unit is to focus on work organisation aspects relating to all work tasks that you could be involved in. Information from previous units may be restated to refresh your memory and to reinforce the interrelationship between this unit and others already studied.

This unit will focus on set tasks expected to be completed by a construction worker within the building and construction industry.

Job Planning

This starts well before the contract is even won, for in order to have a competitive price, a good plan must be made.

- Time management and the amount of materials required for the job are the key elements of the construction process. Careful consideration of these, together with the estimation of overheads and expected profit, will make the tender successful or otherwise.

Work Schedules

This requires looking at the task to be completed, allocating an appropriate amount of time, designating the type of equipment and materials to be used and outlining a work method statement and risk analysis.

At this stage, the company must also determine whether it has the expertise to do the work.

A typical trade sequence for building a timber-framed brick veneer dwelling on a concrete slab could be:-

- Establishing site (power, water, fences, toilet)
- clearing site
- excavating/filling
- laying formwork
- plumbing/electrical

- laying waterproof membrane
- steel/steel inspection/termite protection
- pouring concrete/removing forms
- erecting frames and roof
- fitting windows and door frames
- installing fascia, gutter and valleys
- laying bricks
- laying roof tiles/sarking
- roughing-in electrical/plumbing/air-conditioning
- waterproofing wet area
- installing plasterboard
- installing wet area jambs/architraves (carpenter)
- laying wall and floor tiles
- continuing fix out/kitchen, vanities (carpenter)
- plumbing/electrical/air-conditioning/ finishing off
- painting
- installing appliances
- cleaning out and handover

- Equipment/Material Used
  This will depend on the size of the project. It is important that people in charge are aware of changing work practices that may improve time management. *"The Right Plant/Tool/Material for the Right Job".*

- Effects of Work Environment
  Using a waste management plan should avoid any fines levied by local authorities or the Environmental Protection Authority (EPA) or WorkCover.

- In planning, consideration also must be given to predicted weather conditions. Some contracts do not allow for wet days.

- Noise is a common problem on building sites. Whilst the working hours may be restricted by council, there may also be a restriction on the volume of noise. Care must be taken to restrict unnecessary noise and breaches may warrant investigation by council or EPA.

- Consideration must be given to methods required to suppress the dust that leaves the site. This may mean enclosing the site and wetting down the surrounding area.

- Good housekeeping is now becoming the responsibility of all the workers on site. OHS legislation requires that workers clean up and remove their own mess.

  Examples of good housekeeping include:
  - stacking loose bricks
  - removal of broken tiles
  - separation of various waste products using approved methods

- covering sand to stop contamination
- placement of cement under cover
- removal of food scraps
- cleaning facilities
- emptying full bins

Environmental Protection

No dirty run-off from the site is allowed to enter the drains and waterways, for example:

- cement trucks cannot wash down in the street
- trucks cannot carry dirt on their wheels out onto the street
- dirty water cannot be pumped into the sewerage or drainage system
- trees cannot be damaged.

Failure to comply with these regulations can attract huge bonds.

There are Occupational Health & Safety and union requirements about the cutting/lifting and placing of materials.

- If there is not any legislation offering guidelines for the use and placement of some of the newer building products on the market, the manufacturer's directions and any available union or other safety committees' recommendations should be followed.

Site Conditions

Prior to commencing any construction project it will be necessary to carry out a site inspection. This

will allow you to determine if:

> any extra equipment will be required such as scaffolding for sloping blocks

> the site is accessible and if not to develop a contingency plan

> drainage is satisfactory, or alternatively if stormwater management is required

> any relevant environmental concerns are present

> site boundaries have been set up correctly

> amenities will need to be provided.

Organise materials

Careful planning of materials used in a building project means less waste and therefore cost savings. Careful choice of plant and equipment is also important, as equipment failure or other results of poor choices result in delays and lower productivity. Good organisation of materials and equipment requires:

- planning the timing for calling of orders
- planning the timing for deliveries.

Planning reduces the risk of problems occurring later, as the materials and equipment are on-site when they are needed.

Prepare materials list

To organise the materials for a building project you first need to know what materials are required.

Sometimes a list of materials is available from the estimator. If not, you need to start by looking at the contract documentation to see what is needed. Once you have a list of materials you then need to decide where you will source the materials.

Steps for preparing materials list

There are several steps in preparing this list.

Step 1: Decide what is needed

Firstly, you need to thoroughly read through the site files (including the drawings and specifications) to work out the required materials. Are any special materials (eg imported floor coverings) or fixtures required? If so, you will need to allow additional time to order these in.

Step 2: Prefab or construct on-site?

Decide how to purchase the materials. There are two options:

- Purchase materials for construction on-site, eg timber for on-site framing.
- Purchase prefabricated components, eg wall frames, roof trusses.

Today most builders purchase pre-made wall frames and roof trusses because it speeds up work time on-site.

Step 3: Work out quantities

Work out the amount of material needed. You can do this by looking at the measurements on the plans and using these to calculate the various lengths required.

This information can also be found from lists like a 'timber list' provided by the estimator as part of the tender for the project. This is the most efficient way for a building company to operate as it uses information already available.

If the builder is using a computer program for projects, this will also include the estimating requirements. It is then very simple to make the estimates into a request to quote and from there into an order. A building software system such as 'Databuild' has these work requests built into its program. Many building materials suppliers have Databuild as part of their office package and can receive a request to quote from a builder, prepare a quote and email this back to the builder.

Sample Materials List

Materials list

The house to be framed is a 133 square metre brick veneer house on a concrete slab with a truss framed concrete tiled roof. A brick single garage is attached.

This list is for a frame to be cut and stood on-site, including the roof.

Framing material:

F5 pine studs	90 x 35	230/2400
	90 x 45	14/2400
MGP10 pine PLs	90 x 35	18/3600
		6/3900
		4/4200
		30/5400
Merch pine	90 x 35	23/4800
Masonite braceboard	2440 x 915 x 6.5	8 sheets
Mild steel angle bracing		10/3600
MGP10 pine joists		10/2400
		16/3600
		14/4200
		12/4500
		6/5200
Beams – MGP10	120 x 35	3/2100
	140 x 45	4/3000
	190 x 45	1/3600
	240 x 45	2/4800

Framing material continued:

F17 KDHW	190 x 45	5/3600
		4/3300
	240 x 45	1/3000
MGHP10 pine	90 x 45	37/4800
		38/4200
		8/3300
		4/2700
		12/2700
Roof material		14/3600
		4/5400
		2/6000
F7 pine	140 x 35	10/3600
		4/4500
		3/5400
		2/6000
LOSP fascia	190 x 30	2/4500
		3/540
		2/6000
		3/3300

Fixing material:

Architrave/skirtings single		
MDF raw	67 x 18	19/2400
		2/3300
		13/3600
		11/3900
		40/4200
		4/4800
		3/5400
		3/6000
Internal doors four panel primed and pre-hung		
Internal sliding door	2040 x 870	1 of
2 RH	2040 x 720	2 of
2 LH, 1 RH	2040 x 770	3 of
3 RH, 1 LH	2040 x 820	4 of
1 RH	2040 x 520	1 of
Corinthian/door unit	2040 x 820	1 of
Latch sets – Lockwood 530		7 of
Privacy sets		3 of

Lock up material:

Hardiflex eave sheets	2400 x 600 x 4.5 mm	15 of
	2400 x 450 x 4.5 mm	6 of
	1800 x 900 x 4.5 mm	3 of
Divisional – white		5 of
Merch pine	70 x 35	80 metres

This is a real list as estimated, tendered for quotations and then ordered.

Sourcing materials

Determining possible suppliers

You need to decide where to purchase the materials. You may choose a local supplier such as a timber yard or the usual supplier for your company. Sometimes a wholesaler will be able to meet your requirements.

Quotes are generally called from your company's usual suppliers because:

- the quality of their materials is known
- the bookwork is simplified
- they already work closely with your organisation.

Other suppliers have representatives on the road who call in and collect requests for a quote, bring them back to their sales estimator and then either post or hand deliver the quote back to the builder.

Checking materials availability

To check materials availability, phone around to find out who has good supplies. If enquiries are being made through suppliers other than the usual ones, alternative sources of information are the Yellow Pages, timber industry sources or other known suppliers.

When phoning you can also ask about the quality of material available. For example, if the material required is mainly building quality pine, the quality may need to be queried if the timber is for wall studs. If structural beams are to be used, then Glulam (Glued Lamination) or structural oregon may be used.

Obtaining quotes from suppliers

The next stage is the calling of quotes from these suppliers so you can find the supplier with the most economical price and service. These options are available:

- written request
- email request
- faxed request
- telephone request
- verbal request.

Most builders today mainly use email and faxing. Some builders forward their requests by mail but it depends on the office system in use.

Timber ordering sequence

1. Suppliers are selected
2. Supplier representative calls at site/office to pick up timber list

3. Suppliers provide quote to office
4. Builder selects supplier
5. Builder writes order and forwards to selected supplier
6. Supplier provides delivery docket to site as goods are delivered.

Notes about quotes

It is best to invite at least three quotes from various suppliers to obtain a fair and competitive price. If you are working in a new area, you may like to try an additional supplier from the local area for an extra quote. If you have more than three suppliers interested in quoting you may like to ask for additional quotes.

Your invitation to quote should always be in writing as you will need to check what the quote is, based on the contract documentation. It also makes it easier to compare quotes.

Many building companies will provide the site supervisor with lists of timber and all the other components along with the quotes received. However, they will also give the site supervisor the responsibility of looking at other quotes from the local neighbourhood or from sales representatives that call at the site.

Most builders will invite quotes from local suppliers to 'test the market' and make price comparisons, however the supply and delivery dates must be guaranteed.

Generally a builder will stay with the main supplier. However if the project is in a new area then a local supplier may be given the job. This can serve as an indicator to the main supplier to 'sharpen their pencil' and not to become too complacent! Also if the job is in a new area the builder must allow for some purchasing to be made locally as most jobs need little bits here and there.

Sample Quote

Bernshaw's Windows & Doors Pty Ltd
ABN 75 023 119 813 **QUOTE**

Quote: 31720	**Account:** CBD	**Rep:** Jim Matis
Order:	**Invoice date:**	**Area code:**
Buildright Homes 43 Bund Avenue SOMERS VIC Phone/Fax (03) 9897 6534	Bernshaw's Windows and Doors P/L 13-15 Peters Drive CRANBOURNE VIC 3123 Phone: (03) 9876 6115 Fax: (03) 9876 6116	
Aluminium finish: Powder coat	**Reveals:** 125 mm primed pine	**Category:** P700/Q150
Type of glass: Clear float	**Flashing:**	**Screens:** None
Job address: 13 Bund Avenue SOMERS **Map ref:**		**Delivery date:**

Entry date: 0/05/06 Conversion date: / / / Conversion time: 0:00:00

Item	Qty	Design	Description	Room	Height	Width
1	1	ME2109		Entry	2102	869
2	1	SF1218	Brick ties no reveals	Garage	1200	1810
3	1	SF2018T	BP=600	Bed 1	2000	1810
4	1	SF2012	Brick=Cathedral	Bed 1	900	1210
5	1	ME2109	Coupled	Laundry	2102	869
6	1	SF1006	Coupled	Laundry	1000	610
7	2	1400 700	BP=600	Bed 3	2000	610
		0600 0700		Bed 3		
8	1	SF2018T	BP=600	Bed 2	2000	1810
9	1	SF1009		Kitchen	1000	850
10	1	SF1018		Kitchen	1000	1810
11	1	NFX2118	Glass toughened glass clear	Meals	2100	1810
12	2	SF2108T	BP=600	Living	2000	1810
13	1	SF2009T	BP=600	Living	2000	850
14	12	Sash locks				
15	12	Flyscreens				
16	1	Delivery				

Total items: 16 **Page:** 1

Sales amount:	2843.00
GST payable:	284.30
Total including GST:	**3127.30**

This quotation remains valid for 30 days from entry date. E. & O.E.

Signed (Order acceptance): _____ Date: _____

Nominated materials

Nominated materials are materials that are specified in the plans, specifications and other project documentation. This could include imported materials such as ceramic wall and floor tiles or materials which need to be transported from interstate.

These items must now be sourced and costed. Quotes need to be sought so a supplier for each material can be finalised. If a supplier is a nominated supplier, then the order is placed with them as other quotes are not required. For example, a particular window company may be specified in the contract documentation for the supply of the house lot of windows.

The final cost should include the cost of freight/transport to the site or the workshop where it is to be included into the project.

Freight costs

The following freight/transport terms need to be understood as today's building industry often sources materials from interstate or overseas and materials may be quoted using these terms.

- Freight in store - FIS
- Freight on the wharf - FOW
- Freight on site - FOS
- Freight on board - FOB
- Free on rail or truck – FOR/FOT
- Cost, insurance & freight - CIF

Other terms which may be used are:

- 'ex yard' or 'ex works' which is the cost at point of purchase
- 'cartage' which is the cost for cartage of the goods. This is generally included in the cost but it may sometimes be an added cost so check if you are unsure.

Check how many deliveries have been allowed for in the quote. If you order a whole house lot then you do not want your lockup or fixing materials arriving when the frame is delivered. This creates opportunity for theft, deterioration of quality of goods as well as storage problems.

Purchasing Processes

When contracts for material are let within a project, one of the following methods is used:

- The written quote is signed and authorised as a contractual agreement.
- A formal purchase order is provided, either handwritten from a purchase order book (available from good newsagencies) or as an order typed on an official letterhead. This is usually set up as a standard order form and may be handed over in person or sent by post or fax or email.
- A formal letter of request is provided.

It is advisable to place orders as early as you can for a specified delivery date. This can be several weeks in advance as you often wish to check for availability of a certain material at the same time.

Sample Acceptance Letter and Offer

BUILDRIGHT HOMES

BUILDERS
43 Bund Avenue
SOMERS

Phone/Fax (03) 9897 6543

To: Jim Matis
Bernshaw's Windows and Doors Pty Ltd
13 – 15 Peters Drive
CRANBOURNE VIC 3121

Order no: 201/10 **Date:** 30 July 2007

Project: 13 Bund Avenue, Somers

We wish to confirm our formal acceptance of your quotation number 31720 for the supply and delivery of windows to the above address.

We enclose our cheque number 216042 for $938.20 as a deposit for this order.

Colour is to be stone beige.

We require that the garage window – item number 2 on your order – is manufactured and available to be picked up at the earliest prior to the completion of the balance of the order.

This order is fixed as of today's date – the original together with signed copy of your quote and deposit has been forwarded by mail.

JEFF FORWARD

Site deliveries

It is important that deliveries are brought onto the site **just in time,** neither too early nor too late. Always provide a delivery date when an order is placed. You should generally allow three days from the date of call-up to the date of delivery.

Usually site deliveries are controlled and recorded using a delivery sheet and diary entries.

Small builders generally do not have set delivery procedures as the builder is frequently not on-site when deliveries are made. However, it is important to physically check each delivery against the delivery sheet at the earliest possible opportunity.

Every item on the delivery sheet should be located and ticked off on the sheet. If your sub-contractors are reliable, they may notify the builder when a delivery arrives. If the builder is not able to be present for the delivery, the delivery sheet can be collected next time the builder is on-site. Usually the delivery sheet is left in a sealed envelope with the goods.

Sample Delivery Sheet

Bernshaw's Windows & Doors Pty Ltd
ABN 75 023 119 813

Job – Delivery copy 2

Quote: 41600	**Account:** CBD	**Sales Rep:** Office
Order: Payment	**Invoice date:**	**Area code:**
Buildright Homes 43 Bund Avenue SOMERS VIC Phone/Fax (03) 9897 6534	Bernshaw's Windows and Doors P/L 13-15 Peters Drive CRANBOURNE VIC 3123 Phone: (03) 9876 6115 Fax: (03) 9876 6116	
Aluminium finish: Stone beige	**Reveals:** 125 mm primed pine	**Category:** P700/W150
Type of glass: Clear float	**Flashing:**	**Screens:** None
Job address: 13 Bund Ave SOMERS **Map ref:**	**MC2254**	**Delivery date:** 29/8

Entry date: 0/05/06 Conversion date: / / / Conversion time: 0:00:00

Item	Qty	Design	Description	Room	Height	Width
1	1	E865	TDF entry frame 2107-865	Entry		
2	1	2000-1810 SF/FF	*BP=600	Bed 1	2000	1810
3	1	0900-1210 SF	*Glass=tough cathedral	Bath	900	1210
4	1	E865	Coupled TDF entry frame	Laundry		
5	1	1000-1810 SF	Coupled	Laundry	1000	649
6	2	2000-0610 SF/FF	*BP=600	Bed 3	2000	610
7	1	2000-1810 SF/FF	*BP=600	Bed 2	2000	1800
8	1	1000-8650 SF		Kitchen	1000	850
9	1	1000-1810 SF		Kitchen	1000	1600
10	1	2100-1810 FS SD	*Glass=toughened glass clear	Meals	2100	1810
11	2	2000-1610 SF/FF	BP=600	Living	2000	1810
12	1	2000-0850 SF/FF	BP=600	Living	2000	850
13	11		Sash locks			
14	1		Delivery			

Colour	REV
WIN	
P/U	
DOOR	
D/H	
B.W.	
F/S	
SPEC	
TOTAL	
Sign	

Contact: James (03) 9876 5432
Deposit paid: $938.20 Cheque: 30/7/07
Balance payable before delivery: $2189.10
Refer with MG2254

Total lines: 18 **Total items:** 26 **Page:** 1

Received in good order and condition **Delivery by:** _____
/ / **Quality check by:** _____

If some items are missing from the delivery, you need to phone the supplier. A subsequent delivery is then organised. Sometimes a company representative will be sent with the missing supplies. Occasionally, another order needs to be sent, quoting the same order number with an 'S' added to indicate that a delivery has been 'short' in the goods received, eg order number 1160S.

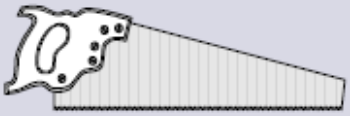
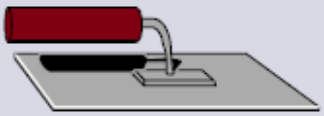
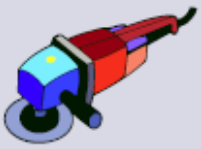
The process is similar for larger builders but often they have a delivery acceptance slip to be filled in by the site supervisor which is then forwarded to the site office.

Selecting Tools and Equipment

Selecting the correct tools and equipment for a specific task will increase efficiency and quality of output. Care also needs to be taken to ensure that tools are used, maintained and stored correctly. A list of some common tools, equipment and plant and their uses are set out below:

Tools

Tools	Uses
Claw hammer	Driving/extracting nails
Timber Mallet	In joinery to avoid damage to chisel handles
Warrington/Cross Pein Hammer	Starting small nails
Lump/Club Hammer	Used with Bolster to cut bricks/stone
Sledge Hammer and Crow Bar	Demolition Work
Pinch/Wrecking Bar	Lever for prising timber apart or removing nails from timber
Spanners	Available in a wide range, generally used to tighten/loosen nuts/bolts
Bolster	Used with Club Hammer to cut through masonry materials
Bolt Cutters	Heavy cutting of rods, bars and wire
Tin Snips	Cutting thin straight or curved lines in thin sheet metal
Pliers	Holding, cutting, banding and stripping wire
Tapes and Rules	Measuring
Spirit Levels	Used to level in the horizontal plane and check for plumb in the vertical plane
Trowels and Floats	Smoothing and finishing concrete and render walls
Electric Drill	Boring, cutting and fastening operations
Hand Saw	Cutting timber
Electric Saw	Cutting timber
Jig Saw	Cutting concave or convex shapes in thin materials
Angle Grinder	Cutting masonry and steel
Edging tool	Creating a curved edge in concrete
Sander	Remove timber fibre or paint to create a smooth surface
Screw driver	Inserting screws into place
Jointing tool	Scraping out mortar joints
Router	Dressing edges of timber and creating housing joints
Combination square	Marking right angles and 45 degree angles
Shovel	Excavation

Dry Trades Hand Tools	Wet Trades Hand Tools	Power Tools
 CLAW HAMMER	 TROWEL	 ELECTRIC DRILL
 HAND SAW	 STEEL FLOAT	 CIRCULAR SAW
 TAPE MEASURE	 WOODEN FLOAT	 JIG SAW
 SPIRIT LEVEL	 BULL FLOAT	 ANGLE GRINDER
 PLIERS	 EDGING TOOL	 SANDER
 SCREW DRIVER	 JOINTING TOOL	 ROUTER
 COMBINATION SQUARE	 SHOVEL	 MITRE SAW

Plant and equipment

Plant refers to the larger mechanical pieces of machinery which may be used on-site, such as a tower lift or compressor.

The term **equipment** describes the smaller non-mechanical tools such as ladders and wheelbarrows.

Plant and equipment requirements are usually determined at the estimating stage of the project and/or when the project schedule is prepared. These requirements can also be determined when the sub-contractors' groups are organised or when the type of work is planned.

The usual procedure for hiring single equipment items such as jackhammers is to phone around the local hire companies for quotes. In some cases, a preferred supplier may be used.

Plant hire is often done in the same way by ringing around. Alternatively this can be part of the quoting process and the price for plant includes the operator.

Sometimes the price quoted involves the additional cost of getting the plant on and off the site. For example, it can cost $400 to bring a bobcat on-site and another $400 to take it from the site.

Plant and Equipment

Plant and Equipment	Uses
Hose	Delivering oxygen, acetylene, compressed air etc
Ladder and Plank	Enabling worker to work at heights
Saw Stool	Easing the cutting of timber and other materials
Wheelbarrow	Carrying materials
Scaffolding	Enabling workers to work at heights
Extension Cord	Providing connection to power source
RCD (Residual Current Device)	Safeguarding against electrocution
Air Compressor	Supplying compressed air to power tools
Generator	Providing 240v power supply
Crane	Lifting heavy loads without use of manual handling
EWP (Elevated Work Platform)	Providing easy access to elevated work areas
Hoist	Raising materials
Pallet Trolley	Moving heavy loads around level surfaces
Industrial Vacuum Cleaner	Vacuuming commercial premises (wet or dry)
Concrete Vibrator	Removing air and water from concrete mix
Concrete Mixer	Mixing concrete and mortar
Pre-Mix Concrete Truck	Delivering pre-mixed concrete to site
Concrete Pump	Pumping concrete from truck to required placement
Bulldozer	Clearing vegetation, excavation, demolition
Tip Truck	Removing vegetation and demolished materials from site
Front End Loader	Shovelling and dumping loose materials into tip trucks and back blade/level soil surplus
Scraper	Stripping and levelling site, cut and collect soil, spreading
Grader	Spreading and levelling materials
Back Hoe	Ttrenching and excavating

Temporary services

Councils and OHS requirements make it a condition of the building contract for the following temporary services to be supplied from the start of the building process:

- **Temporary electrical pole** or power box built into its permanent position. If a slab is being poured on the ground, the power is brought on-site and the power board is put into its permanent place. Sometimes the location of the existing service will determine this. The set back distance and overhead or underground supply need to be considered
- **Chemical toilet**, which in certain circumstances needs to be permanently plumbed
- **Waste bin**
- **Temporary fencing** around the site so that the public does not have access
- **Water tapping** to supply water to the site. This may be a short tapping (on the same side of the street) or a long tapping which requires piping under the road (if supply is on the other side of the street)
- **Seepage barriers** (in some cases) across the front of the site to stop water and soil running onto the footpath
- **'Tiger strips'** if work is to take place close to overhead powerlines
- **Barricade** to meet the local municipal by-laws. If the site cut is over one metre, a barricade is erected to prevent public access. If the site cut is less than one metre, a temporary fence is erected.

If more than 10 workers are to be employed at any one time, the OHS requirements are much more stringent in relation to amenities and facilities.

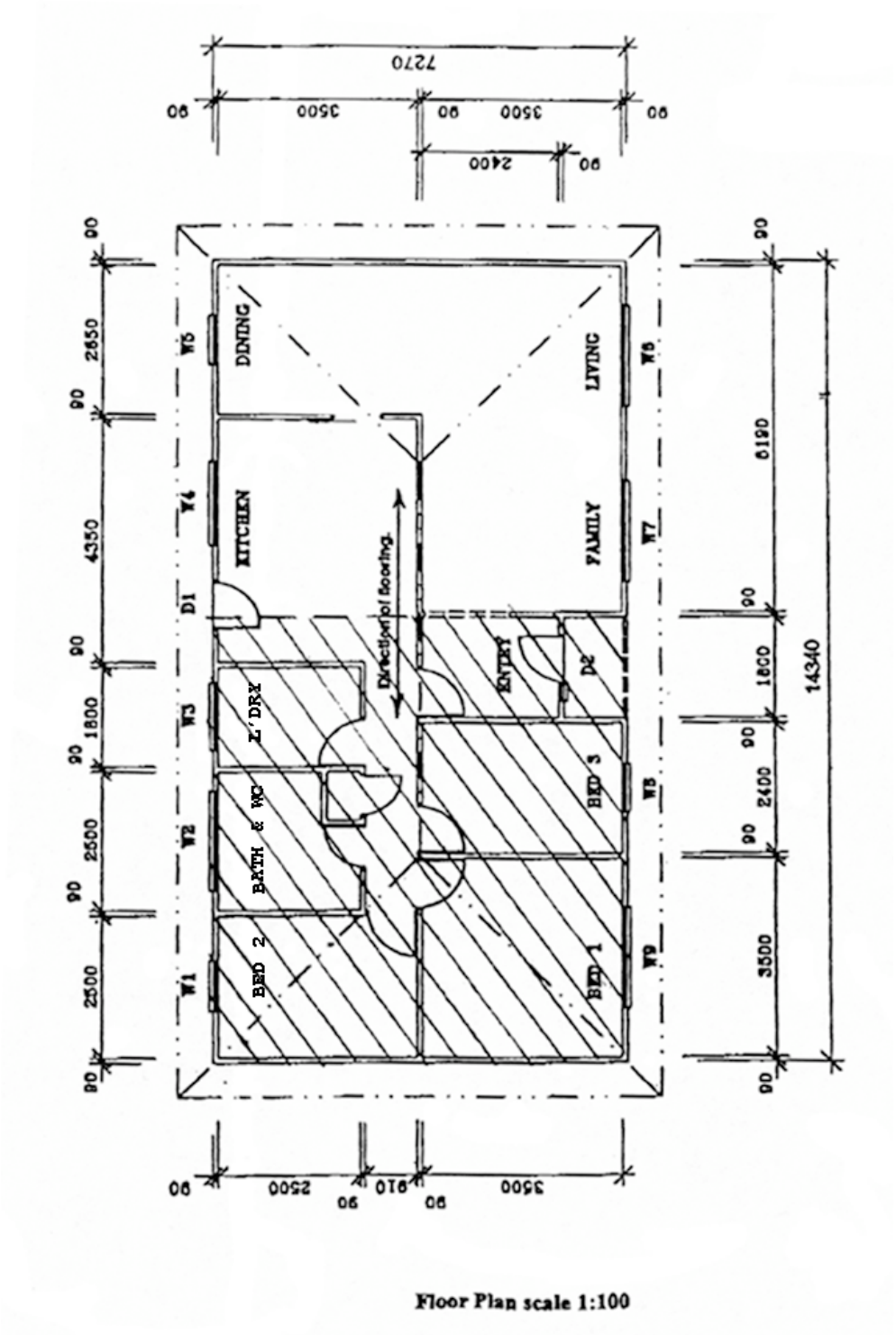
Temporary services and site accommodation requirements need to be determined as part of the plant and equipment requirements. Generally these factors have been built into the quote, however, a site supervisor must be aware of these points.



Timber calculations for framing a house

To calculate the timber required for constructing wall frames you need to use measurements from a floor plan. As the cost of timber is usually quoted per lineal metre, measurements for timber are done in the same way.

House plan



Floor Plan scale 1:100

Step 1

Top plate length = total of lengths along the long wall of the second bedroom (include the 90 mm thickness of the timber at each corner).

Length of top plate: 90 + 910 + 2500 + 90 = 3590 mm

Multiply by 2 to include the length of the bottom plate.

Total length of top and bottom plates: 3590 x 2 = 7180 mm

Divide by 1000 to convert to metres: 7180 ÷ 1000 = 7.180 m

Step 2

The length of timber for the noggings is the same as for the top plate.

Length of noggings is 3590 mm = 3.590 m

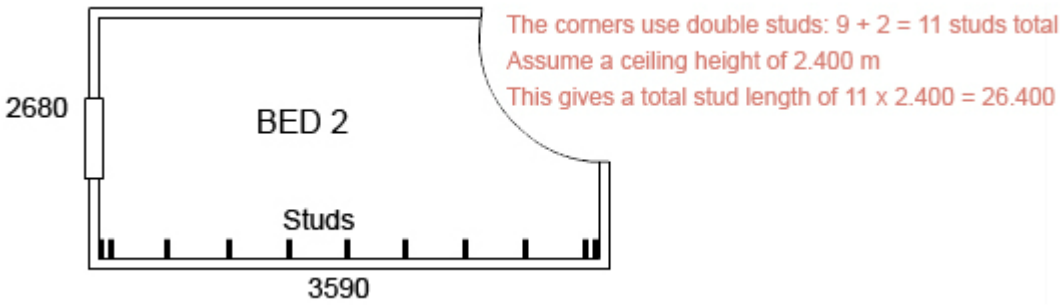
Step 3

Studs are positioned every 450 mm or less, depending on the length of the wall.

Long wall = 3590 mm with studs at a spacing of 450 mm.

3590 ÷ 450 = 7.98 rounded to 8

This gives 8 spaces and 9 studs. Check this on the diagram.



Step 4

As you will need to calculate the length of the window lintel in the frame for the topic activity, the method is given here. Measure the window on the plan in millimetres.

Window measures 9 mm

Use the scale of 1:100 to convert: 9 x 100 = 900 mm

Add 150 mm to each end of the lintel: 900 + 150 + 150 = 1200 mm

Convert to metres: 1200 ÷ 1000 = 1.200 m

Step 5

Working out the cost of these materials to frame the long wall is the final step in the process.

Top and bottom plates	90 x 45 mm MGP 10 pine	$2.65 per lineal metre
Noggings	90 x 35 merch pine	$1.15 per lineal metre
Studs	90 x 35 mm MGP 10 pine	$1.95 per lineal metre
Lintel	190 x 45 F17	$8.75

Material cost calculations:

Plates: 7.180 m @ $2.65 per lineal metre = 7.18 x 2.65 = $19.03

Noggings: 3.590 m @ $1.15 per lineal metre = 3.590 x 1.15 = $4.13

Studs: 26.4 m @ $1.95 per lineal metre = 26.4 x 1.95 = $51.48

Total cost to frame the long wall of the second bedroom = $76.64

Note: The cost of the lintel is not included in this wall. Use the same method.

Lintel: 1.200 m @ $8.75 = $10.50

Organise labour

Planning the construction process carefully is vital as it saves time. Time saved is money saved. It is important to allow sufficient time for planning prior to work commencing on-site as good planning has a strong bearing on the outcome of the whole building project.

Careful planning of labour requirements takes these points into consideration:

- time taken to complete the project
- determining the number and type of workers required on-site
- stages in the construction process
- sequencing of trades
- allowances for delays.

As labour is a major cost of any building project, good planning of the labour requirements is of utmost importance.

Sequencing of Major Construction Activities
Work sequencing of major building activities can vary depending on the type of building to be constructed and its location.

Preliminaries
The construction process can only begin when all preliminary works have successfully been completed and approved. These include:
> working drawings by architect, planner or drafter
> specifications
> computations from the structural engineer
> soil reports and footing designs
> building contract signed by all concerned parties
> architectural supervision if required
> financial arrangements successfully negotiated and agreed
> stamped council approval of all working drawings and specifications.

When all these preliminaries have been completed and council approval received by the successful building contractor, the physical work can start.

Trade Sequencing
The construction industry is divided into 3 main sectors:
> housing – houses, units, alterations, additions, garages

> commercial – high-, medium- and low-rise office buildings, hotels, motels, shopping centres, hospitals, schools, libraries
> civil – road construction, bridges, airport runways, car parks.

Each section of the construction industry requires many tradespeople. Some are common to all sections, whilst others are specialists within a specific section of the industry.

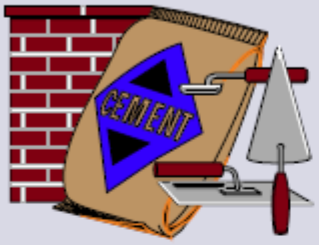
Common Trades include:
> concrete and steelworkers
> carpenters
> plumbers
> bricklayers
> electricians
> painters.

Specialist Trades include:
> demolishers
> roof tilers
> dry wall and ceiling fixers
> telecommunication technicians
> air conditioning specialists
> structural steelworkers
> solid and fibrous plasterers
> gas fitters
> glaziers
> lift and elevator mechanics
> welders
> riggers
> shop fitters
> mechanical services.

The advantages of Trade Sequencing include:
> orderly work flow
> elimination of unnecessary stoppages. The subcontractors are notified in advance before going to the work site and this saves time
> order and delivery of materials prior to the sub-contractor arriving on-site
> saves the sub-contractor's time as the work is ready to commence on arrival
> greater control over the construction process for the work supervisor
> increased flexibility of work process
> prevention of harsh financial penalties by completing the job on or before the agreed time.

Note: Many housing, commercial and civil contracts include a penalty clause in the contract in case the Building Contractor exceeds the agreed completion time.

Trade Sequencing in the Housing Section of the Construction Industry
Listed below is an example of a trade sequence for a timber framed brick veneer dwelling.

Earthworks	1. Excavating. 2. Filling. 3. Compacting.
Footings 	1. Spreading and compacting dolomite or sand filling. 2. Plumber – trenching and laying waste pipes. 3. Electrician – laying electrical and telecommunication conduit. 4. Form work – forming up for edge beams and rebates. 5. Placing polythene membrane. 6. Spraying termite barrier. 7. Pouring, placing, compacting and finishing off concrete.
Carpenter 	1. Measures and sets out for timber wall frames. 2. Makes up and erects wall frames. 3. Lifts and locates into position factory made trusses. 4. Anchors and stabilises all trusses and intermediate ceiling joists. 5. Fits window and door frames. 6. Completes boxed eaves and fixes eaves lining.
Roof Plumber	1. Fits valley and gutters. 2. Fits eaves, gutter and downpipes.
Roof Tiler	1. Battens out roof. 2. Sarks roof if below 15 degree pitch. 3. Loads concrete tiles onto roof. 4. Spreads concrete tiles. 5. Beds ridge and hip capping. 6. Brushes off roof tiles to a clean finish.
Electrical – 1st Fixing	1. Establishes where all light and power outlets are required. 2. From the meter box, services all light and power points with electrical cable.

Bricklayer	1. Lays face bricks to the external perimeter. 2. Lays face or common bricks to any party walls.
Carpenter	1. Returns to site and fits external doors.
	JOB IS NOW AT A LOCK-UP STAGE
Fit Out and Finish Sequence	
Wall and Ceiling Fixer	1. Nails plasterboard sheets to walls and ceilings. 2. Tapes joints; flushes nail fixings and joints. 3. Fits cornice moulds to junction of wall and ceiling.
Carpenter 	1. Fits all internal doors and locksets. 2. Fixes architraves and skirtings. 3. Installs kitchen cupboards. 4. Installs all other cupboards and wardrobes. 5. 'Finish Off' and make good any carpentry work necessary.
Floor and Wall Tiler	1. Cuts and fixes floor tiles to all wet areas. 2. Cuts and fixes wall tiles to above mentioned wall areas other than porch areas, including tiling above kitchen cupboards.
Plumber – 2nd Fixings	1. Installs laundry trough, bath, vanity units, shower outlets and shower cubicles, toilet suites and all necessary tap fittings.
Electrical – 2nd Fixings	1. Fits all light switches and power outlets. 2. Installs light fittings and exhaust fans etc. 3. Arranges for electrical test to be carried out.
Painter	1. Applies paint to internal walls and ceilings to client colour selections. 2. Applies paint to all internal and external windows, architraves, skirtings, mouldings, eaves and gable lings etc.
Completion	1. Thorough cleaning of all glass to all windows, clean out for 'handover' to client.

Note: Any change in materials may affect the sequence of trades For example, listed below is a trade sequence for a timber framed beach house with corrugated steel roof to 'lock up' stage. The sequence would change as the concrete, steelworker, bricklayer and roof tiler are no longer required.

1. Site works – clear and level site.
2. Erect floor frames.

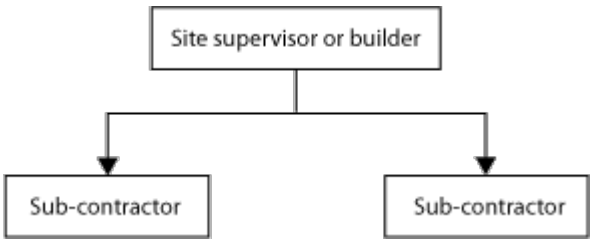
3. Erect wall frames.
4. Erect roof frames.
5. Fix eaves, gutters and roof cladding.
6. Install windows and door frames.
7. Complete fixing, external cladding and flashings.
8. Fit external doors and locks.

Selection of project staff

The first thing a company needs to determine is immediate needs relating to staff, the size of the project and its particular job specific requirements.

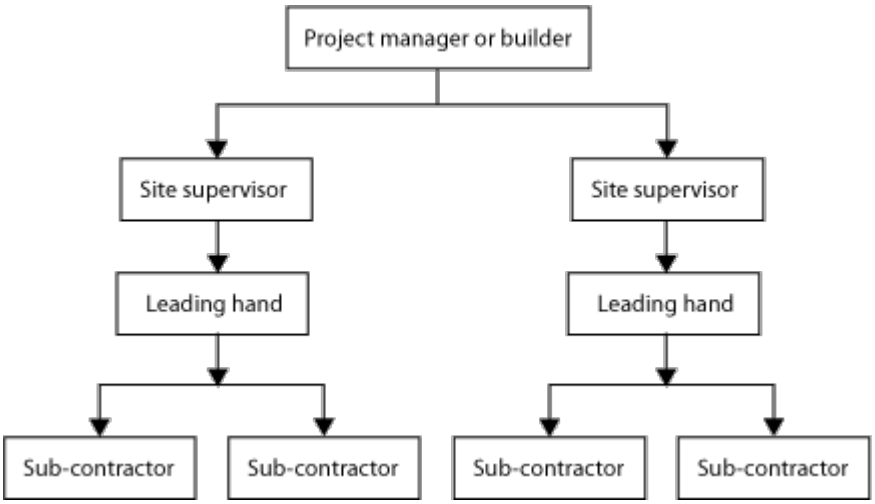
Small project management

Small residential projects will usually only need a site supervisor who runs the day-to-day activities involving the tradespeople and liaises directly with the builder and often with the client.



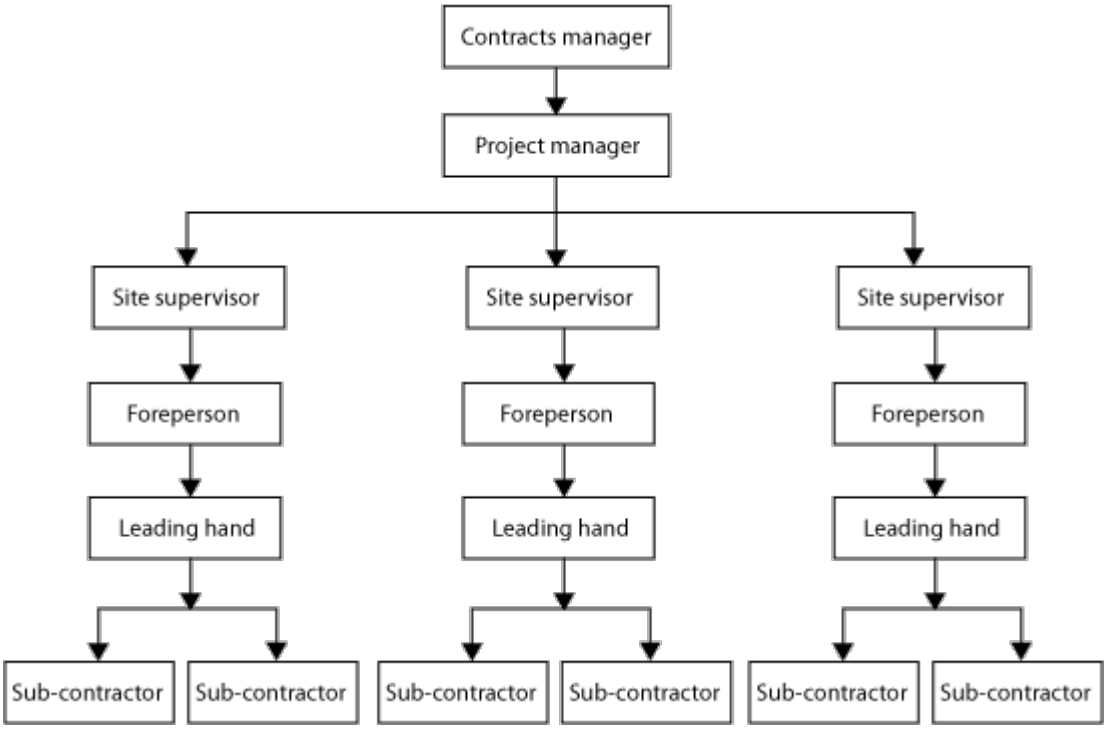
Medium project management

Medium-sized building companies often engage a project manager to oversee this type of project. In residential work these companies employ a project manager to oversee many site supervisors who each look after several projects at the same time.



Large project management

For larger projects such as commercial constructions, the company may also need the services of a site foreperson who is responsible for the delegation of duties to workers on-site and may also be responsible for site safety. The site foreperson answers to the site supervisor.



Labour structure

The structure of labour within a building company varies greatly depending on the type and size of the company. Talk to people you know in the building and construction industry and find out how labour is organised in their company.

Determining labour requirements

Employees or sub-contractors?

Staff can be employed on a full-time basis. They will receive all the benefits of being on permanent employment, eg sick leave, superannuation, holiday pay etc. It is important to remember that if staff are employed on a full-time basis, the company will have control over them on an hour-by-hour basis.

The majority of personnel employed in domestic construction are sub-contractors. They are engaged to carry out a particular piece of work within a given time and therefore the main contractor does not have hourly control over them. It is up to sub-contractors to get the job done in the time specified.

Nominated sub-contractors

Contract documents often include nominated sub-contractors within them. Generally this means that a sub-contractor is chosen by the designer and/or the owner to carry out a particular part of the project such as supply and installation of heating and cooling or the installation of a staircase.

A nominated sub-contractor carries out their work under the umbrella of the main contractor, however, they are paid directly by the owner.

Types of labour needed

The site supervisor needs to read through the site files thoroughly (including the drawings and specifications) to determine the **type** of labour required to carry out the construction of the project.

It is also necessary to check if there are any specialised

trades such as solid plastering for a feature wall.

This small brick veneer house is on a concrete slab and has a cement tiled roof. A bricklayer and concreter will provide some of the necessary labour as part of the construction process.

The need for certain specialised trades is clear from the contract documentation.

Types of labour needed

Which one of the following tradespeople would not be required for the construction of this house?

A. Carpenter

B. Roof tiler

C. Electrician

D. Plumber

E. Plasterer

F. Painter

G. Stair maker

H. Heating/cooling contractor.

The correct answer is G - Stair maker. As this is a single-storey house, there is no requirement for a stair maker.

Requirements for various tradespeople can vary considerably depending on the nature of the construction and the size of the building company.

Amount of labour needed

To be able to calculate labour quantities you need a general understanding of the construction process. You can get this information from discussions and texts, but it is largely learned from actual experience.

Trade knowledge and trade estimating books such as Rawlinsons Australian Construction Handbook and Cordell's Building Cost Guide mean that labour times for most activities can be estimated using established knowledge. Naturally these times will vary with the experience of the tradesperson, but an average figure is used for estimating purposes.

Calculating labour constant

Example

A bricklayer may lay 500 standard bricks in an eight hour day. To calculate the average number of bricks per hour:

500 ÷ 8 = 62.5 or just 63 (by rounding up) for ease of calculation.

This figure is referred to as a labour constant. It is used in calculating the number of hours of bricklaying required to lay bricks for a house of a given size.

Question

If a bricklayer lays 400 bricks in an eight hour day, what is the average number of bricks laid per hour?

A. 42

B. 45

C. 50

D. 53

The correct answer is C - 50. That's because 400 ÷ 8 = 50.

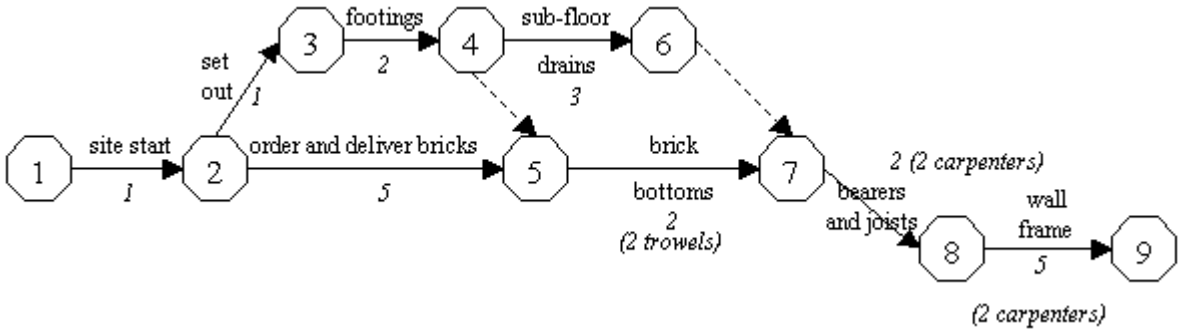
Timing for labour

Once the planning stage has been completed and the preliminary network diagram drawn, the scheduling may be commenced. This involves the allocation of begin times to all the activities in the network diagram.

The practical difficulties of estimating times are considerable. The important point to keep in mind concerning time estimation is that the time allocated to each activity should be realistic rather than desirable. In practice, the estimation of times for each of the activities that make up a project is derived from a person (or persons) with considerable previous experience in performing or managing similar tasks. Alternatively, the duration of particular activities may be extracted from records concerning similar tasks carried out in the past.

Once the estimated times have been agreed upon for all the activities, they can be inserted on the network diagram. Such times are then referred to as activity duration times and are usually placed beneath the arrows representing the relevant activities. The size of the project will determine whether the duration times are estimated as days or weeks.

We now have a graphic summary of the project in terms of activity sequences and their duration times which have been estimated as necessary to carry out the project.



Network with durations for each activity and how the times were arrived at.

It is necessary to work out **when** labour is required. A common way of scheduling labour is to use a Gantt chart which sets out the start times and durations for each sub-contractor. The Gantt chart also specifies the types of labour involved in the project.

The timing for labour may be calculated by the estimator who prepares the tender for the project. The estimator uses a 'time estimate' and/or 'time schedule' which are also terms for a bar chart.

Here is a section of a Gantt chart for the start of the construction of the small brick veneer house. Move your mouse over the highlighted areas to find out more information

	MARCH/APRIL																									
TASK/ACTIVITY	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Arrange services:																										
Connect electricity	■	■	■																							
Connect water supply	■	■	■	■																						
Book portable toilet	■	■																								
Fencing and signs	■	■	■	■	■																					
Set out site:																										
Locate and inspect building site								■	■																	
Clear and level site										■	■	■														
Set out string lines															■											
Excavation:																										
Excavate over site																■	■	■	■							
Excavate footings																						■	■	■	■	

Non work days

Planned work

Labour availability

Often there is a time period in which a certain trade is required for completion of a job. Check that your contractors are available when you need them. Even if a contractor suits

your requirements there is no point in employing them if they are not available to work in the timeframe required.

You may wish to ask the contractor for a list of other jobs they are committed to and times when they will be required on those projects. By doing this, you are able to get an idea about whether they have the resources and skills to complete the work in the specified timeframe.

Cost of labour

Labour costs may have been calculated by the estimator by breaking the components down into separate labour and materials costs. In some cases quotes are given for labour only or materials only, while other quotes include both labour and materials together.

The labour cost component is worked out with reference to industry manuals such as *Cordell's* or *Rawlinsons* which provide cost estimates for reference.

A sub-contractor can quote for labour on an hourly basis (eg $60 per hour) for a particular job without specifying the time to complete the job. This charge covers the overheads and profit in running their business.

Alternatively, labour can be quoted as part of the cost of construction. In this type of quote, labour can be quoted in three different ways:

Note that these are quotes for **labour only**. Materials are not included.

Per unit (each), eg installation of doors is usually quoted per unit

Per lineal metre, eg the cost of building walls to a specified height such as 2400 mm may be quoted per lineal metre of wall length

Per square metre, eg the cost of building walls may be quoted on the floor area in square metres

The way in which labour is quoted depends on the nature of the job and the type of sub-contractor who is quoting.

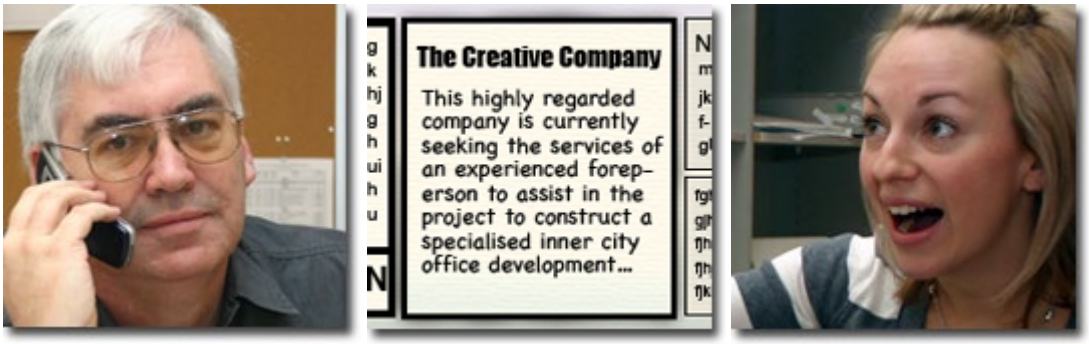
Finding labour

The necessary labour may be:

- chosen directly to work on-site from workers known to the builder
- found through an agency or through the quoting process.

There are several ways of obtaining the necessary labour:

- Use workers known to the builder.
- Place an advertisement in newspapers (major and local) and/or in trade magazines.
- Engage a recruitment agency to carry out the search for staff.
- Use 'word of mouth' processes.
- Phone known sub-contractors.
- Use trades staff from other companies - persons known to people already working for the builder.
- Sub-contractors often call in looking for work after the work has started on-site.



Trade contracts

Calling for quotes

The calling of quotes from sub-contractors is done by the estimator or project manager who ensures that the most economical price and service is found.

Many building companies will provide the site supervisor with a list of the sub-contractors who have been invited to quote along with quotes received. However, they will also give the site supervisor the responsibility of looking for other quotes from the local neighbourhood or from contractors who may call at the site.

Requests to quote can be sent:

- by email
- in writing
- by fax
- by phone
- verbally.

Whichever method is used, the labour quotes must be submitted in writing. It is advisable to get a minimum of three quotes so you can be confident you have a competitive price.

Sub-contractors must be supplied with all the current documentation available so they can prepare their quotes thoroughly and accurately.

Methods for labour quotes

The following methods may be used to let orders of contracts for labour:

- a written quote is signed and this authorises it as a contractual agreement
- a formal purchase order is provided
- a formal letter of request is provided confirming the quote
- a sub-contract agreement is signed (standard forms - these are available from Master Builders Association (MBA) or Housing Industry Association (HIA)).

Sample Labour Quote

6 September 2012

Wonder Builders
3 Hagrid Place
POTTERVILLE VIC 3888

Dear Sir/Madam

We wish to supply our quotation for the supply of labour to frame the residence at Lot 111 Gerry Lane, Gearsville for $760.98.

Our quote is made up as follows:

Length of bottom plate	55 lin. m @ $2.70	$148.50
Length of top plate	55 lin. m @ $2.70	$148.50
Length of noggings	55 lin. m @ $3.96	$217.80
Framing of studwork	55 lin. m @ $3.45	$189.75
Framing of lintels	9 lin. m @ $6.27	$56.43
	TOTAL	**$760.98**

Yours sincerely

Harry Salamander

Labour component for framing a house

Determining labour for framing a house requires the use of the measurements from the house plan. You will need to specify some kind of measurements as part of a labour quote for the framer - per lineal metre of wall, per square metre of wall or per square metre of floor.

You will use the small residence house plan.

These worked examples will walk you through the steps for the three different methods of quoting labour.

Method 1 - per lineal metre

Labour is quoted per lineal metre of timber framing. Check your copy of the house plan for the dimensions used in this example. Follow the worked example carefully as you will be doing a similar calculation in the topic activity.

Calculate the labour component of framing the top and bottom plates for the exterior walls of the house.

Step 1

To get the length of the top plate (or the bottom plate) total the lengths of the four exterior walls of the house.

14,340 + 7,270 + 14,340 + 7,270 = 43,220 mm

Step 2

Multiply this figure by 2 to include both top and bottom plates:
43,220 x 2 = 86,440 mm.

Step 3

Divide by 1,000 to convert to metres: 86,440 ÷ 1,000 = 86.440 m = 87 m rounded to the next highest whole number of metres.

Step 4

The number of lineal metres of timber you will require for the top and bottom plates is therefore 87 m. If the cost is $2.55 per lineal metre to frame the plates for the external walls of the house (labour only), you can now cost the labour.

The labour cost to frame the top and bottom plates for the external walls is
87 x 2.55 = $221.85. There are additional calculations required to include the internal walls. This will be required in the topic activity.

Method 2 - per square metre of floor area

Labour is quoted by the floor area in square metres. This is the usual method of quoting by sub-contractors for a simple design.

Step 1

Calculate the floor area of the house: Area = length x width (use metres)

Length = 14,340 mm = 14.340 m (divide by 1,000)

Width = 7,270 mm = 7.270 m

Area of the floor = 14.340 x 7.270 = 104.25 square metres

Step 2

Multiply the floor area of 104.25 square metres by the charge rate per square metre to give the total cost of labour.

If the charge rate is $16.50 per square metre, the total cost of labour is:
104.25 x 16.50 = $1,720.13 rounded to $1,720.15.

Method 3 - per square metre of wall area

The other method of quoting for timber framing is to use the wall area in square metres. There is a bit more calculation in this method than in the others.

Assume a wall height of 2.400 m.

Step 1

You can use the total lineal metre result from method 1 for the total length of the external walls, which is 87 m.

Remember that area = length x height

Area of walls = 87 x 2.400 = 208.8 square metres of external walls.

Step 2

If the charge rate is 18.90 per square metre of wall, the total charge for labour is:

208.8 x 18.90 = $3,946.32 rounded to $3,946.30

Note: this is an example for the **external walls only**. You will need to do more calculations to include all the interior walls for a full labour quote. This will be necessary in the topic activity.

Environmental Responsibilities

During the planning stage of any project you must consider the impact the project will have on the environment and take action to reduce that impact. There are laws, regulations, policies and guidelines that aim to protect the environment in Australia. The main environmental concerns in the general construction industry are stormwater pollution, litter, dust and sediment run off. You are required to carry out construction works in a manner that will prevent pollution entering waterways.

> Stormwater carries pollution to waterways and coasts.
> Sediment smothers aquatic plants and animals, silts up creeks, rivers, reservoirs and dams.
> Litter finds its way into stormwater.

Benefits of litter and waste management and erosion, sediment and dust control include:

> reduced clean up costs
> reduced mud/dust hazards
> improved wet weather working conditions
> improved occupational health and safety
> improved drainage
> reduced stockpile losses
> fewer public complaints
> better image within the community

Dust Control

Dust does not only have environmental impact, it is also an OHS issue. Generally wherever there is a construction site you will find dust as the very nature of construction results in the production of dust. Some materials such as cement or gypsum-based materials produce dust, which can be a serious risk to workers.

Possible Controls:

> use of water sprays and mists
> using wet methods for concrete cutting or friction saws
> clean up debris promptly
> use of approved masks where there is an inhalation risk
> use of industrial vacuum cleaners.

Site Drainage

The list below includes controls that will reduce the environmental impact of stormwater.

> Up-slope water should be diverted around site using small turf or geotexile lined catch drains or diversion banks.
> Diverted stormwater should be discharged onto stable areas.
> Avoid discharging water towards site exit/entrance points.
> Connect temporary or permanent downpipes to stormwater system when roof is installed.

Recycling

Recycle as many materials as possible, including

> steel
> aluminium
> gypsum plasterboard
> timber
> concrete
> bricks and tiles
> plastics
> glass
> carpet.

Reduce Building Materials

Building material accounts for 40% of land fill in Australia. Steps for reducing materials include:

> reduce consumption of materials
> reuse existing materials
> recycle resources
> use renewable resources
> use materials with high recycled content.

Sand and Soil Stockpiles

The list below includes controls for the management of sand and soil stockpiles.

> Delivery drivers should have a designated area to deliver materials on site.
> Stockpiles not to be stored on footpaths or within road reserve.
> Stockpile and materials should be:
> located behind sediment controls
> protected from run-on water
> at least 2m (preferably 5m) from hazard areas
> less than 2m in height.

Sediment Fencing

Sediment fencing controls the environmental impact of sediment.
Sediment fences
> Prevent sediment leaving site.
> Should be placed following contours.
> Last up to 6 months but require weekly checks.
> Must remain vertical and keyed into soil.
> Must be repaired promptly if damaged.
> Need to be trenched in at least 150mm and buried so water flows through and not under.
> Have compacted soil on either side to avoid seepage.

Quality Assurance

The planning of any project or task within the construction industry should take into consideration the quality of the end result. Businesses, large and small, are encouraged to introduce quality control systems and programs. These systems benefit both the provider of the product or service and the customer. The benefits include:
> improved service
> improved productivity
> improved efficiency
> reduced mistakes and wastage
> reduced costs
> improved customer satisfaction
> improved market share
> improved chance of staying in business.

What is Quality?

Quality means many things to many people. In reference to a product

or service it can refer to:
> fitness for use
> fitness for purpose
> meeting requirements
> safety
> well made products
> adequate service.

This suggests that it is the customer who will eventually determine the quality of the product or service. That is, if the product or service does not meet the customer's requirements you have failed in
providing a quality product or service.

What are Quality Assurance Systems and Standards?
> Quality Assurance Systems are systems or procedures devised and implemented to improve product or service quality.
> Quality Assurance Standards are published documents, which list the appropriate systems that should be used to manage quality. Australian Standards are published documents that list standards of products or services which ensure goods, services and products are accurate and safe.
> Until the mid 1980's most companies had their own listed standards. However, in 1987 The International Organisation for Standards (ISO) published a series of standards known as the ISO 9000. This series was recognised by over 200 countries, including Australia and adopted as our national standards. Originally, in Australia, this series was named AS 3900 however it has since been amended to AS/NZ/ISO 9000.

To summarise, Quality is the commitment that is made to the customer/client and Quality Assurance is a set of policies and guidelines to ensure that the commitment is fulfilled. The basic idea behind quality is to achieve customer/client satisfaction.

What is a Customer?
A customer is anybody who buys or receives a product or service.
Customers can be:
> individuals
> businesses
> teams
> corporations
> partners
> communities.

Customer Service
Customer service under a Quality Assurance System means that a supplier's goal is to meet and exceed the needs and expectations of a customer. The return to the supplier is that the customer will recognise the company's quality and service and:
> acknowledge the quality of service received
> return for further service
> recommend the supplier to others.

Quality Assurance suppliers recognise two types of customers:
> external – Those who purchase or use a supplier's products or services
> internal – Those who are employed by the supplier and provide a service to each other.

For example, in the construction industry, the internal customers are the tradespeople, supervisors, project managers and administrators. The external customers are the owners, subcontractors, material suppliers, project managers and administrators.

Safe Work Method Statement (Template – Bricklaying)[2]

[2] Source: Lighthouse Group, as at http://www.lighthousegroup.com.au/documents/Bricklaying%20SWMS.pdf, as on 2nd February, 2014.

OHS FORM 005 SAFE WORK METHOD STATEMENT (SWMS) – also known as Job Safety Analysis (JSA)				
	This SWMS has been developed and authorised by:			
Company Name:	**Name:**			
	Position:		**Date:**	
ABN:	**Signature:**		**Phone:**	
			Mobile:	
DESCRIPTION OF WORK ACTIVITY: Bricklaying				
Trades involved with undertaking this Work Activity:				

This SWMS is submitted to: (principle contractor)

COMPANY:	
CONTACT NAME:	**PHONE NUMBER:**
SITE ADDRESS:	**PROJECT DESCRIPTION:**

This SWMS was review by: (principle contractor)

NAME:	**POSITION:**
SIGNATURE:	**DATE:**
PHONE NUMBER:	**MOBILE NUMBER:**

Person responsible for OHS on the contractor's behalf:

NAME:	**POSITION:**
SIGNATURE:	**DATE:**
PHONE NUMBER:	**MOBILE NUMBER:**

List plant, equipment and tools to be used	List Hazardous Substances to be used or handled	MSDS available? (Tick)	List PPE to be worn	(Tick)	List Hazards to consider	(Tick)
eg. Electric generator	eg. Unleaded petrol		Hard Hat		Fall from ladder	
			Safety Boots		Fall from heights	
			High-visy clothing		Fall from scaffold	
			Gloves		Contact with electricity	
			Hearing Protection		Falling objects	
			Safety Glasses		Collapse	
			30+ Sunscreen		Slips, trips and falls	
			Dust Masks		Manual handling	
			Other (specify):		Exposure to noise	
					Struck by moving plant	
					Inhalation of dust or fumes	
					Cuts	
					Other (specify):	

Health Risks and Likelihood of Damage	How LIKELY is it to be that bad? Note: If a hazard is rated 1, 2 or 3, action must be taken immediately.				
	What damage could it cause?	VERY LIKELY *Could happen anytime*	LIKELY *Could happen sometimes*	UNLIKELY *Could happen, but only rarely*	VERY UNLIKELY *Could happen, but probably never will*
	Death or permanent disability	1	1	2	3
	Long term illness or serious injury	1	2	3	4
	Medical attention or several days off work	2	3	4	5
	First Aid needed	3	4	5	6

How to complete the following form

1. List the step-by-step sequence of tasks required to carry out the work activity from start to finish.
2. Listing of potential hazards associated with each step, and the related OHS risks.
3. Using the risk table, rating the identified risks.
4. List what controls you will implement to reduce the risks to the lowest possible level.
5. Rate the level of risk once those controls have been implemented (must be 4-6 before you can start work).
6. List the names or positions of the persons responsible for ensuring the controls are implemented.

STEP	Job Step Beak the job down into steps. List the steps in this column.	Hazard Identification Identify any potential hazards associated with each step – and any related risks. Detail the hazards and risks in this column, and enter the risk rating in the next column.	Initial Risk Rating (1-6)	Controls Implemented Decide what controls to use to eliminate or minimise the risks. Detail the controls in this column, and enter the revised risk rating in the next column. **Note: If the risk rating is still 1-3, do not begin work.**	Revised Risk Rating (1-6)	Person Responsible
1.	Plan the Job (prior to arriving on site).	Poor preparation.		Review Principal contractors Site Safety Plan and Emergency Procedures.		
		Lack of Competence		Ensure all staff are adequately trained and competent to undertake the work.		
2.	Conduct a Risk Assessment (on site).	Exposure to unsafe acts, substances and conditions.		Undertake a Site Induction prior to entering the site to conduct the Risk Assessment.		
3.	Erection of scaffold (if required).	Back injuries.		All staff to be trained in correct Manual handling techniques. Team lifting to be used for any items above 16kg.		
		Fall from heights.		Guard rail to be in place for all platforms above 1.8m.		
		Scaffold collapse.		Scaffold over 4m to be erected by certified persons. Ensure working deck has AS planks x 5 wide. Maximum safe working load is to be observed at all times.		
4.	Locate Mixer and Saw	Back injuries.		At least two persons to be used when moving mixer. Locate mixer close to area that wall is to be constructed.		
		Noise		Ear muffs to be worn whilst operating saw. Saw to be isolated from work area where possible.		

STEP	Job Step Beak the job down into steps. List the steps in this column.	Hazard Identification Identify any potential hazards associated with each step – and any related risks. Detail the hazards and risks in this column, and enter the risk rating in the next column.	Initial Risk Rating (1-6)	Controls Implemented Decide what controls to use to eliminate or minimise the risks. Detail the controls in this column, and enter the revised risk rating in the next column. **Note: If the risk rating is still 1-3, do not begin work.**	Revised Risk Rating (1-6)	Person Responsible
5.	Locate Bricks and other materials.	Back Injuries.		Certified forklift operator or crane operator to be used to remove brick pallets from delivery truck. Bricks to be located as close as possible to work site. All staff to be trained in correct Manual handling techniques. Wheelbarrow and hoist to be used to move bricks around site. 20kg bags to be used where possible. All bags to be team lifted by two persons or moved via a wheelbarrow.		
		Falling Bricks.		If a crane is used to move bricks, a competent person is to check the quality of the pallets prior to craning. Brickguards to be in place on all working platforms. Gap between building and scaffold to be no greater than 225mm.		
		Structural collapse of scaffold.		Ensure working deck has AS planks x 5 wide. Maximum safe working load is to be observed at all times. Handover certificate to be obtained from Scaffolder.		

STEP	Job Step Beak the job down into steps. List the steps in this column.	Hazard Identification Identify any potential hazards associated with each step – and any related risks. Detail the hazards and risks in this column, and enter the risk rating in the next column.	Initial Risk Rating (1-6)	Controls Implemented Decide what controls to use to eliminate or minimise the risks. Detail the controls in this column, and enter the revised risk rating in the next column. **Note: If the risk rating is still 1-3, do not begin work.**	Revised Risk Rating (1-6)	Person Responsible
	Locate Bricks and other materials (continued)	Hoist failure.		Hoist handover certificate to be issued on erection. Ensure only ticketed/log book operators to use hoist. The hoists SWL is to be clearly displayed at all times. Hoist to be maintained as per manufacturer's requirements.		
6.	Mixing cement.	Dust.		Dust masks to be worn whilst opening cement bags and mixing cement		
7.	Cutting Bricks.	Hand, eye and ear injuries.		Only trained persons are to operate the saw with the use of goggles and earmuffs. Saw (and guard) to be inspected at least weekly.		
		Dust.		Dust mask to be worn whilst operating saw.		
		Excessive Noise.		Ear muffs to be worn whilst operating saw. Saw to be isolated from work area where possible.		
8.	Laying Bricks.	Falling Bricks.		Brickguards to be in place on all working platforms. Overhead protection to be in place for all edge work bordering public thoroughfares.		

STEP	Job Step Beak the job down into steps. List the steps in this column.	Hazard Identification Identify any potential hazards associated with each step – and any related risks. Detail the hazards and risks in this column, and enter the risk rating in the next column.	Initial Risk Rating (1-6)	Controls Implemented Decide what controls to use to eliminate or minimise the risks. Detail the controls in this column, and enter the revised risk rating in the next column. **Note: If the risk rating is still 1-3, do not begin work.**	Revised Risk Rating (1-6)	Person Responsible
		Wall collapse.		Green walls are not to exceed 1.5m or six times its thickness (whichever is greater) in height. An individual risk analysis will be undertaken on all green walls that may be exposed to inclement weather.		
		Falling from heights.		Guard rail to be in place for all platforms above 1.8m. Overhand work is not to take place unless adequate scaffolding is erected on both sides of the wall.		
9.	Using Power tools.	Electrocution.		All power tool leads to be checked and tagged monthly. Power leads to be suspended in the air to prevent damage.		
		Eye injuries.		Goggles to be worn when operating power tools.		
10.	Using Explosive Power tools.	Puncture wounds.		Only a certified person to operate, with area affected to be barricaded off and signs displayed.		
11.	Working with hazardous substances.	Burns, blindness and illness.		Appropriate PPE to be worn and staff familiarised with relevant MSDS.		
12.	Cleaning Bricks.	Burns from Hydrochloric acid		All brick cleaning will incorporate water and hydrochloric acid. Area affected will be isolated and signs erected. PPE will be provided during cleaning activities.		
13.	Work site cleanup.	Back injures.		A wheelbarrow will be used to remove debris.		

STEP	Job Step Beak the job down into steps. List the steps in this column.	Hazard Identification Identify any potential hazards associated with each step – and any related risks. Detail the hazards and risks in this column, and enter the risk rating in the next column.	Initial Risk Rating (1-6)	Controls Implemented Decide what controls to use to eliminate or minimise the risks. Detail the controls in this column, and enter the revised risk rating in the next column. **Note: If the risk rating is still 1-3, do not begin work.**	Revised Risk Rating (1-6)	Person Responsible
		Trips, Falls on debris.		Site cleanup will be undertaken daily to prevent debris build-up.		
14.						
15.						

THESE ARE STANDARD SWMS, THEY MUST BE MODIFIED TO SUIT YOUR WORKERS, YOUR EQUIPMENT AND YOUR SITE.

CHECKLIST OF ITEMS THAT MAY BE REQUIRED FOR THIS WORK ACTIVITY	
QUALIFICATIONS	
TRAINING	
CODES OF PRACTICE OR AS/NZS STANDARDS TO BE COMPLIED WITH	**Codes of Practice** OHS Consultation OHS Induction Training for Construction Amenities for Construction Work Electrical Practices for Construction Work WorkCover Identification tool – Identification Tool for Bricklaying – Hazard profile

Declaration by contractors & workers:

1. I have been **consulted** and assited in the development of this SWMS.

2. I have been given the opportunity to comment on the content of this SWMS.

3. I have **read** and **understand** how I am to carry out the activities listed in this SWMS.

4. I have been supplied with the **personal protective equipment** identified on this SWMS and I have been given **training** in the safe use of this equipment.

5. I have read and understand the requirements set out in the **mateial safety data sheets** for the **hazardous substances** identified in this SWMS.

NAME:	SIGNATURE:	DATE:

ASSESSMENT

CPCCCM1013A Plan and organise work

Student Name	
Student ID	
Unit commenced (Date)	
Unit Completed (Date)	
I hereby certify that I have undertaken these assessment tasks utilising my own work without assistance from any other parties. I have not knowingly plagiarised any work in completing these assessment activities. **Student Signature**	

Knowledge Assessment (Written Tasks)

There is a picture of a phone, a desk calendar showing March 22 and a clock showing 10.45 am. This is the phone conversation.

Scott (builder): Hi Kosta, how are you? I'm looking for an excavator to work on a site of about 600 square metres.

Kosta (hire Co.): Great Scott, good to hear from you again. Can you give me a bit more information about the site?

Scott: Sure. It's a relatively flat scrape, not much vegetation on the site and good clear access. I've got five days to work in between April 9th and 13th. What have you got?

Kosta: I reckon a six and a half to eight tone excavator would do for that. There's one of those available on April 10th so put that in your diary. Your float fee would be $150 for the low loader for a one-off delivery and you'd be looking at a hire rate of $100 an hour.

Scott: Oh yeah. I want to remove the spoil from the site too. Probably about two trucks worth. A 7.30 start would be good for the excavator and the trucks could come by, say 8.30 for the first one and 9.30 for the second.

Kosta: Yes, I've got that down. Sounds good. I'll need to check the tipping fees for you. They were $4.50 a cubic metre but the charges have just increased, even for clean fill.

Scott: Thanks. Good to get that one sorted out. I'll send out a purchase order in the next day or so to confirm.

Kosta: That's done then. Remember we've got a minimum five hour charge on the hire, four hours work and one hour travel.

Scott: Got that. Thanks Kosta. You'll hear from me.

The details required on the diary page are determined by answering the following questions.

Question 1

What is the correct date of the phone call?

A calendar showing the month of March is displayed - days 1 to 31.

Question 2

What is the correct contractor name?

A. Kosta

B. Con

C. Kyle

Question 3

Which of the following is the correct company name?

A. Buildright Excavators

B. Buildright Renovators

C. Building Excavators

Question 4

What is the correct time of the call?

A. 10.45 am

B. 11.15 am

C. 10.45 pm

Question 5

What is the correct rate quoted?

A. $100 per hour and $100 float fee

B. $100 per hour and $150 float fee

Question 6

What other details do you need to consider? Choose the correct comment from the options below.

A. Excavator booked for April 15, tipping fees to be confirmed at $4.50 per cubic metre

B. Excavator booked for April 10, tipping fees to be confirmed at $45 per cubic metre

C. Excavator booked for April 10, tipping fees to be confirmed at $4.50 per cubic metre.

A house job requires the laying of 8,000 bricks. Using the labour constant of 50 from the previous question, the number of hours to lay these bricks is 8,000 ÷ 50 = 160.

Question 7

Using the labour constant of 50 bricks per hour how many hours of bricklaying are required to lay 6,000 bricks?

A. 130

B. 143

C. 150

D. 750

If 120 hours of bricklaying are required to complete the job, the number of days of bricklaying required is: 120 ÷ 8 = 15 days.

Question 8

What is the number of days (assume eight hour days) needed to complete 180 hours bricklaying?

A. 15

B. 18

C. 20

D. 22.5

Question 9

Your invitation to quote should always be:

A. A verbal agreement

B. Sent by courier

C. In writing

D. On decorative paper.

Question 10

How many quotes for sub-contractors should you get?

A. 1

B. 2

C. 3

D. 4

Question 11

Which of the following should you consider when choosing sub-contractors for a job? There is more than one answer to this question.

A. The price they quote

B. Their availability

C. How neatly they dress

D. They have been recommended

D. The size of the company they work for

E. They are local

This is the phone conversation.

Builder: Hi Mario, it's Jimmy here. Can you give me a price to lay a concrete slab of 100 square metres? The slab is a simple Class A type slab.

Concreter: Yeah Jimmy, sure. Look, it'll cost you $85 per square metre.

Builder: Thanks Mario, and I want you to confirm this in writing.

Concreter: Sure thing. You'll get it in writing early next week, say by Tuesday 21st.

Question 12

A calendar showing the month of October is displayed. What is the correct date of the phone call?

Question 13

Choose the correct contractor name from the options below.

A. Mario

B. Matthew

C. Michael

Assessment Outcome

Question	Correct (✓)
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	

Assessed by _____ Assessor Signature_____ Date _____

Skills Assessment (Practical Tasks)

ASSESSOR NOTE

These instructions must be followed when assessing the student in this unit. The checklist on the following page is to be completed for each student. Please refer to separate mapping document for specific details relating to alignment of this task to the unit requirements.

This competency is to be assessed using standard and authorised work practices, safety requirements and environmental constraints.
Assessment of essential underpinning knowledge will usually be conducted in an off-site context.
Assessment is to comply with relevant regulatory or Australian standards' requirements.
Resource implications for assessment include:

- an induction procedure and requirement
- realistic tasks or simulated tasks covering the mandatory task requirements
- relevant specifications and work instructions
- 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.

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.

Task 1 – Quantity Calculation

This exercise involves calculating quantities of timber to frame the main bedroom shown in the house plan. This small brick veneer house is on a concrete slab and has a cement tiled roof.

Note: The door length is included as part of the total wall length.

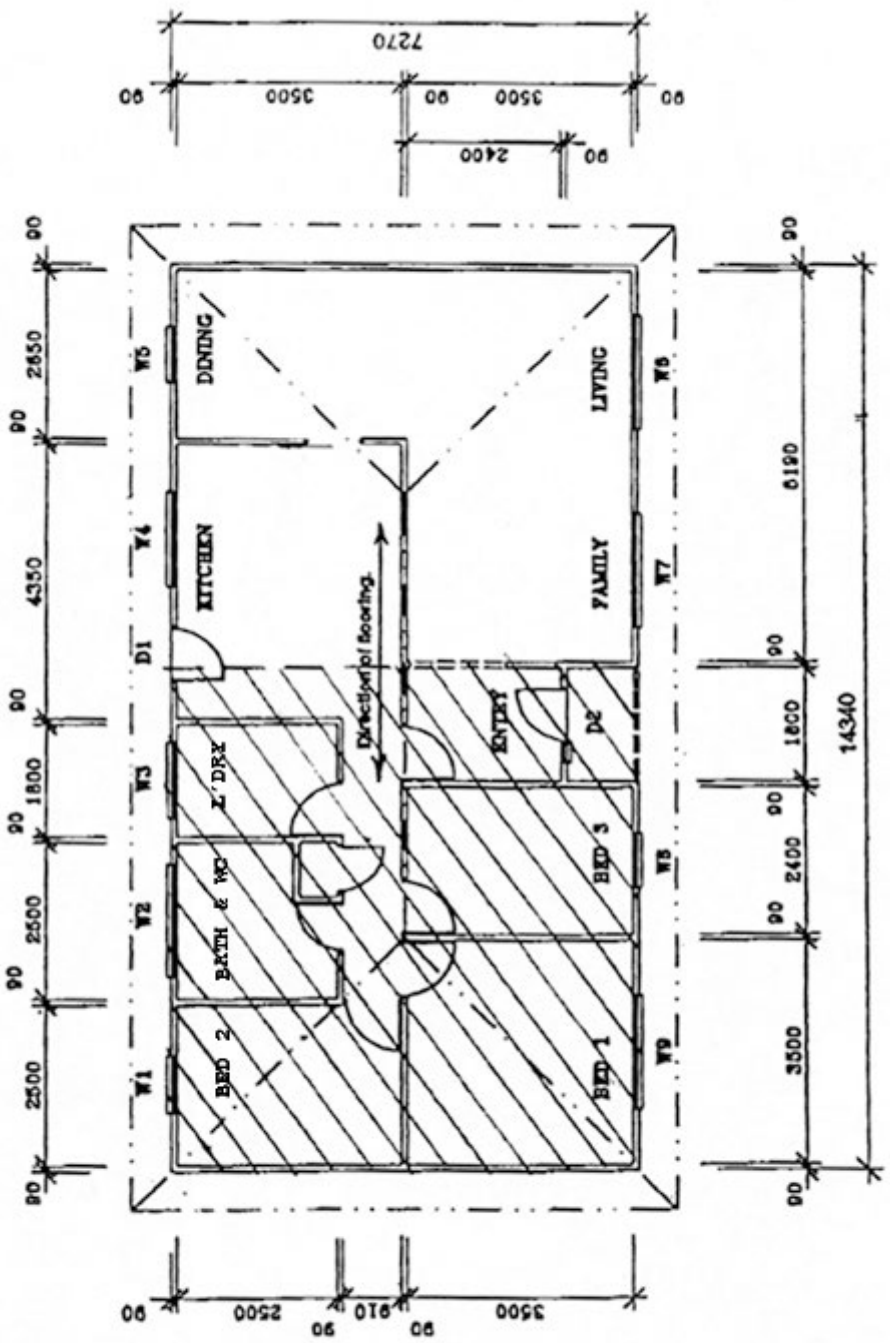
Floor Plan Overleaf.

1. Calculate the length of timber required to construct the frame for the main bedroom shown on the plan for:
    - top and bottom plates
    - noggings
    - studs
    - lintel.

2. Cost the framing of the main bedroom using the following information.

Materials		
Top and bottom plates	90 x 45 mm MGP 10 pine	$2.65 per lineal metre
Noggings	90 x 35 merch pine	$1.15 per lineal metre
Lintel	190 x 45 mm F17	$8.75

House plan



Floor Plan scale 1:100

Observation Checklist

Observation Criteria	S	NS
Material requirements correctly calculated		
Nature of site determined		
Health and safety requirements determined and noted		
Site environmental plan considered		
All required materials noted		
Improvement requirements noted		
Sourced Relevant information		

Outcome

❑ Satisfactory ❑ Unsatisfactory

Comments:

Date _____

Signed _____ (Assessor)

Signed _____(Student)

Task 2 – Site Preparation

Prepare an area for laying concrete pavers on a dolomite base, with a fall towards a stormwater drain, or guttering which leads to stormwater run off. The area needs to be approximately 10m² to accommodate an outdoor setting. The pavers will need to have a concrete bund (edge) around the area to hold pavers in place.

Use the table below to list:
> all the materials you will need
> quantities of material required
> all tools, equipment and Personal Protective Equipment (PPE) you will need
> safety requirements necessary to perform task. Such as:
> identification of potential hazards
> barricades and signage required.

Materials	Quantities	Tools/Equipment	Safety Issues

Are there any environmental issues that need to be considered to perform this task? If so please list:

Observation Checklist

Observation Criteria	S	NS
Material requirements correctly calculated		
Nature of site determined		
Health and safety requirements determined and noted		
Site environmental plan considered		
All required materials noted		
Improvement requirements noted		
Sourced Relevant information		

Outcome

❑ Satisfactory ❑ Unsatisfactory

Comments:

Date _____

Signed _____ (Assessor)

Signed _____(Student)

Task 3 – Site Checklist and Planning

Complete the following site checklist for a construction site nominated by your Assessor:

LEARNING ACTIVITY
ENVIRONMENTAL CONTROLS
Building & construction industry
Environmental checklist

- **INTRODUCTION**

Building and major construction sites are a necessary part of modern life, but if not managed carefully can contribute to environmental problems such as stormwater pollution and high levels of waste generation.

Safety can be jeopardised and annoyance or inconvenience can be caused by the action of builders and contractors if they don't do the right thing.

Substantial fines can be issued for breaching environmental legislation, Council by-laws and regulations. They range from on the spot fines of **$300** for littering and stormwater pollution to Court prosecutions up to a maximum penalty of **$30 000**.

- **YOUR RESPONSIBILITIES**

Laws in Australia require all building construction works must be carried out in a way that will prevent the entry of any pollution into waterways, including stormwater systems.

If you are involved in the building industry, you are required to "**take all reasonable and practicable care**" to reduce or prevent any adverse environmental impact as a result of your activities.

The following checklist is designed to help you think about the various elements of the construction process that could potentially be having a negative effect on the environment. It also provides you with some ways to help you improve your environmental performance. By complying with the suggestions, you should avoid, or at least be able to defend yourself from prosecution.

- **THE LAW & YOU**

There are numerous laws, regulations, policies and guidelines to help protect the environment in Australia. They set out legal requirements and guidelines for business, industry and the general community.

If you break the law, it could be an offence with serious penalties; in most cases, the prosecutor does not have to prove your pollution was deliberate. **Even accidents can result in prosecution.**

You and others involved with your business should be aware of these laws and their penalties. **You must take all reasonable and practicable care not to harm the environment**.

Legislation you must be aware of includes:

Environment Protection Act	Local Government Act
Environment Protection Policy (Water Quality)	Development Act
Environment Protection Policy (Air Quality)	Public & Environmental Health Act

For further information on the law and how it can affect you, refer to the Environment Protection Authority (EPA) *'Handbook for Pollution Avoidance on Building Sites'* pages 4-6.

SITE PLANNING

It is essential that throughout the design, application and construction stages of your building project that you consider your environmental responsibilities and do it right the first time. This check sheet guides you through this process to help set your site up so that it complies with the requirements of the relevant environmental legislation to prevent pollution.

Is the total area to be disturbed, or left disturbed, at any one time exceeds 0.5ha (approx 70 x 70 metres)?

☐ YES ☐ NO If NO go to **Site Environmental Plan**

If you answered YES to the above, you are requested to prepare a **Soil Erosion & Drainage Management Plan** (SDEMP). For further information on the preparation of a SDEMP, refer to the EPA's *'Handbook for Pollution Avoidance on Building Sites'* pages 8-9.

Site Environmental Plan

The following Site Environmental Plan is designed to assist you in managing waste as well as controlling sediment and erosion on a building site. It provides guidelines to help you plan where controls are required to ensure you meet your environmental responsibilities.

North point

Request a building site plan from your trainer

Mark location of appropriate environmental controls
ie, where you plan to place a bin, if there is a stormwater drain near your site, etc.

Tick box for relevant control required for your site (refer to appropriate fact sheets below)

☐ Waste/recycling bin

☐ Gravel access

☐ Stockpile area (sand, etc)

☐ Geofabric silt fence

☐ Bunding placement

☐ Stormwater drain

Environmental controls

Waste/recycling bin

Gravel access

Stockpile area

Geofabric silt fence

Bunding

Stormwater drain

Sediment & erosion controls

Is your site near to, or does it slope towards an adjacent site, road, drain or watercourse?

☐ Yes ☐ No

Refer to KESAB Clean Site *Sediment fencing & Stabilised entry/exit point* information sheets.

Do you have sediment and erosion control measures in place before excavation starts?

☐ Yes ☐ No ☐ N/A

Refer to KESAB Clean Site *Sediment fencing & Stabilised entry/exit point* information sheets.

Do you ensure stormwater drains around your site are free of litter, soil, building materials, etc?

☐ Yes ☐ No

Refer to KESAB Clean Site *Litter and building waste* information sheet.

Do you have a single entry/exit point that is stabilised (gravelled) to prevent drag out of sediment/mud onto the road, footpath and gutter?

☐ Yes ☐ No

Refer to KESAB Clean Site *Stabilised entry/exit point* information sheets.

Have you advised your subcontractors and material suppliers of their environmental responsibilities?

☐ Yes ☐ No

Refer to KESAB Clean Site *Delivering to building sites* information sheet.

Are stockpiles protected by a sediment fence on the downward side?

☐ Yes ☐ No ☐ N/A

Refer to KESAB Clean Site *Sand and soil stockpiles* information sheet.

Do you ensure the road adjacent to your site is cleared of all soil, mud, clay and any concrete waste by broom and/or shovel at the end of each day?

☐ Yes ☐ No

Refer to KESAB Clean Site *Soil onsite checklist & Delivering to building sites* information sheets.

Do you connect downpipes to the stormwater system as soon as roofing is completed to help prevent sediment from being washed off the site?

☐ Yes ☐ No

Refer to KESAB Clean Site – *Early roof downpipe connection* information sheet.

- **Dust control**

Is the site likely to become dusty? (Suppress dust where possible)

☐ Yes ☐ No ☐ N/A

Refer to EPA's *'Handbook for Pollution Avoidance on Building Sites'* pages 28-29.

- **Waste management**

Do you have a waste bin placed on site, emptied regularly and where it cannot contaminate or pollute stormwater drains if it rains?

☐ Yes ☐ No

Refer to KESAB Clean Site *Litter and building waste* information sheets.

Do you separate any of your building waste, ie items for reuse or recycling?

☐ Yes ☐ No ☐ N/A

Refer to KESAB Clean Site *What building materials can be recycled?* information sheet.

- **Noise control**

Are you aware of noise regulations and do you take steps to minimise noise?

☐ Yes ☐ No

Refer to EPA's *'Handbook for Pollution Avoidance on Building Sites'* pages 30-31.

Final checklist to ensure builders and contractors ensure these conditions are met:

☐ Ensure written permission is arranged through local council prior to recycling waste bin being placed on the road or footpath.

☐ Make sure that the footpath, the area of land between the kerb and the property alignment, including the crossover, is not used for storing building materials, pallets, sand, soil or other materials.

☐ Ensure any soil or material dragged onto the road by vehicle tyres is cleaned up before the close of business. Save water - use a shovel and/or broom not a hose.

☐ Sand, gravel, soil and clay are not to be deposited or discharged to waters, roads or stormwater system. These stockpiles are to be contained in an area onsite.

☐ Ensure no rubbish, sawdust, paint (or associated paint materials), building, construction or demolition waste is discharged/deposited on roads or street gutters, including locations where it is reasonably likely to be carried by wind or runoff to roads or street gutters.

☐ Keep sand, soil or any other material away from roads, street gutters, footpaths or council land.

☐ Wastewater from painting, cutting bricks (or the like), mixing concrete, tools, equipment, machinery washing is to be contained and not discharged or deposited accidentally or deliberately into the stormwater system.

☐ The rights and comfort of neighbours is respected at all times relating to noise and dust control and parking of vehicles. Why not speak to neighbours before starting to build

Observation Checklist

Observation Criteria	S	NS
Site checklist fully completed		
Nature of site determined		
Health and safety requirements determined and noted		
Site environmental plan obtained and referenced		
Site planning activities considered		
Improvement ideas noted		
Effectively communicated with site personnel		

Outcome

❑ Satisfactory ❑ Unsatisfactory

Comments:

Date _____

Signed _____ (Assessor)

Signed _____(Student)

CPCCCM1013A Plan and organise work

Assessment Outcome Record

In order to be deemed competent in this unit, the candidate must answer all written questions correctly and satisfactorily complete all practical tasks. In order to complete all practical tasks, all Observation Criteria need to be satisfied, i.e. demonstrated and marked as an 'S'. The task summary outcome must be noted as satisfactory to note the demonstration of a satisfactory outcome for each practical task requirement.

Student Name	
☐ Not Yet Competent	☐ Competent
Comments	

Assessor (Name)	
Assessor Signature	
Date	