COURSE IN

OWNER BUILDER COMPLIANCE

MODULE 4

DRAWING, ESTIMATING AND CASH FLOW

NTIS 91509NSW

ABSOLUTE EDUCATION

CONTENTS

DRAWINGS AND SPECIFICATIONS

INTRODUCTION

The sole function of working drawings is to convey the intention of the designer, so far as drawings are capable of doing this. They must be accurate and legible before everything else. They are part of the contract documents of the building contract and should always be prepared with the realisation that they are legal documents.

Two types of drawings are used.

1. ***Design or sketch drawings*** that set down ideas on room relationships, room sizes, the orientation of the house, the stylistic treatment of the house, colour schemes, possible furniture layout and landscaping ideas.
2. ***Working drawings or construction drawings*** that show the finalised design. They indicate the exact arrangement of spaces, their sizes, the materials of construction and specific details so as to enable the building of the house.

The drawings must be clear and perfectly legible to everyone who needs to work from them. To ensure this, the terms, abbreviations, symbols and other conventions used must be commonly understood.

Design drawings – how are they produced?

SKETCH PLANS (CONCEPT)

Consider the sketch plans as being the plan submitted to the intended owner of a building. Such a plan may be a freehand black and white sketch (and often is, in the first instance) or a fully coloured drawing. In any case, the very first requirement is simplicity. It should show clearly the basic planning layout and areas, and sufficient information only to describe broadly such things as:

- General Construction
- Sizes of Rooms
- Aspect (position of North Points)
- Relationship to boundaries or adjacent buildings etc
- Possible layout of major plant or furniture etc.

Once the sketch plan is approved there are still a number of matters which should be checked before proceeding further, unless these have previously been confirmed.

SITE

- Detailed measurements of site
- Positions of easements and other legal restrictions
- Aspect (position of north)
- Foundation conditions
- Levels and drainage
- Correct names of adjacent streets
- Lot number (or house number)
- Condition of adjacent roads and fences
- Positions of large trees, existing buildings, etc which may affect location of the new building.

REGULATIONS

- Council approval of any doubtful features concerning local by-laws, etc.
- Other regulations:

  Eg: Town planning requirements
  Sewerage and Water Authority
  Health Departments.

SERVICES

- Positions and suitability of :

  Sewer (including levels)
  Council stormwater drains (and levels)
  Electric supply
  Gas main
  Telephone services
  Water service.

DETAILED DRAWINGS

The drawings have to be produced in a size that are called scaled drawings. The architect/draftsman employs a great many abbreviations and symbolic representations of the many materials and details necessary. Symbols are used to represent much of the information in connection with materials, windows, doors, bathroom fixtures, walls, footings and floors.

Several different types of drawings are required. The drawings are prepared in such a way that each of them shows this information in a standardised manner.

By looking at these drawings in conjunction with each other we are able to understand the overall three dimensional form of the design and how its parts relate to each other.

1. Plans

The plan is a view looking down on an object. In building drawings, many types of plans are used, but they are all drawn as though looking down on to the subject being drawn. A floor plan is drawn as though a view of the floor of the building is being drawn, with sections taken through the walls, doors and windows etc. A 'roof plan' is a drawing of the roof as though viewed from a point above.

The object of the plan is obviously to show the proposed layout of the rooms, and often the placing of furniture and the major fittings.

2. Elevation views

An elevation is best described as a 'side view', looking flat on to the side of a building or other object. It may be a 'front' or a 'side' elevation, depending on the view being taken. On building drawings elevations are usually referred to by the aspect to which they face (e.g. North Elevation, South-east Elevation etc).

The elevations show the appearance of the building. Elevations are often replaced by perspective drawings which may be simple diagrammatic illustrations or complex works of art.

Look at one after the other, the four sides of an existing house. As we look at each side we see what is called an elevation view. Take separate pictures of each of the four sides of the same house. We would have another form of elevation views. Elevation views allow us to see how the exterior sides of a house will appear after all the structural work has been completed.

3. Section views

A section is a drawing set out as though a view is being taken 'cut through' a portion of the building, or other object.

In most cases elevation and plan views cannot show sufficient information to enable a builder or tradesman to see exactly how the various structural parts of the house are to be built or assembled. The section shows the size and thickness of structural members and relationships between spaces. For example, it shows the height from the ground to the floor, the height between the floor and the ceiling, and how the roof is to be constructed.

INTERPRETING THE DRAWINGS (1)

LEARNING ACTIVITY 40

Using your own drawings or those provided by the Trainer, view the drawings and select the following. Provide a brief description of each selection.

Elevation Views

Section View

Floor Plan

BUILDING/CONSTRUCTION DRAWINGS

In the sketch plan the drawing has been kept as simple as possible, in order to make it legible to a layman. Working drawings must also be kept as legible as possible, but they must contain appreciably more information than the sketch plan. They must contain sufficient information for the builder to set out the building from them and in conjunction with the Specification, must give adequate detail for preparation of a tender. The following list is a brief summary of the items to be included in the plans of a typical working drawing.

- Dimensions (sizes, figured in millimetres)
- Room names (and room numbers, if necessary)
- Floor finishes
- Built-in cupboards and other fittings
- Plumbing fixtures
- Downpipe positions
- Roof lines (if no separate roof plan)
- Section lines
- Door swings and window positions
- Door and window numbers (if required).

Scales

The process of drawing large objects such as the parts of a house to a proportionate size which can be contained on handy size sheets of paper is called drawing to scale. The small drawings must be in exact proportion to the actual size of the house they represent. On most drawings the scale used makes the drawings 1/50th or 1/100th the original size. This means that instead of drawing something one metre long it is drawn 1/50th or 1/100th of a metre long. The finished drawing looks exactly like the full sized object. The scales in most common use are as follows:

Location or locality drawings	1:2500
Site Plans	1:500, 1:200
Plan views	1:200, 1:100, 1:50, 1:20
Elevations	1:200, 1:100, 1:50, 1:20
Sections	1:200, 1:100, 1:50, 1:20
Detail drawings	1:10, 1:5, 1:2, 1:1 full size

In the construction industry it is normal to produce drawings for houses at a scale of 1:100, possibly 1:500.

Contents of drawings

1. Survey Plan – Usually produced by a surveyor

a. Existing site and surroundings.

b. Position of major natural features, trees, ponds, rock outcrops.

c. Sufficient spot levels and contour lines related to a specified datum (height above sea level).

d. Dimensions of boundaries.

e. Position of roadways, easements; existing drains and possibly service mains.

2. Site Plan

a. Outline of site boundaries showing location of proposed building.

b. Position of boundary setbacks.

c. Depths, where they may occur.

d. New roads and pathways.

e. Soil and surface water drains, complete with pipe sizes.

f. Service runs from the house to mains.

g. Location of utility services (sewer, water, gas, electricity).

h. The point of connection of those services to the house itself.

i. Indication of banking and cutting and areas for depositing and spreading surplus soil.

j. New levels on the site in connection with the new house.

k. Landscaping. ***Note,*** if the site is undulating or steep, section should be added to show principle areas of cutting and filling.

They may also include:

a. Real property description and lot number, etc.

b. North direction indicated.

c. Street position and owners' name.

d. Contours and levels.

e. Driveway.

3. Floor Plan

a. Dimensions of overall brickwork, stud framing and room sizes to rough stud frames. Trim openings of all windows and doors. Space allowance for refrigerator and white goods. Wardrobe depths. Location and spacing of all columns and verandah posts.

b. Roof and eave lines as dashed lines.

c. Doors and windows to have a legend reference describing the details of each.

d. Internal dimensions so far as necessary to establish positions of internal walls or fittings.

e. Thickness of walls.

f. Door swings.

g. Windows.

h. Location of fittings and fixtures.

i. Names on all rooms.

j. Floor finishes.

k. Position of stairs and number of stair treads.

4. Sections and Elevations

a. Elevations of all parts of the building.

b. Size and shape of openings.

c. External finishes.

d. New and old ground levels showing cut and fill.

e. Position of floor level, ceiling level.

f. Positions of all windows and doors.

g. Heights of ceilings, doors and windows above the floor surface can be marked here.

h. Dashed lines indicating positions of external wall bracing (optional on elevations but good practice).

i. Dashed lines indicating natural ground lines (this will enable more accurate calculating of materials below floor level).

j. Roof and wall claddings and finish.

k. Types of glass selected for specific windows and doors.

l. Roof vents, air conditioning units, and solar H.W.S locations.

Other Plans

Used either where requested or for more complex houses.

A. Footing Plan

i. Width and depth of all footings to wall, piers, staunchions.

ii. Location of footing system.

iii. Position and levels of drains and gulleys close to footings.

iv. Walls above footings with thickness noted.

B. Roof Plan

i. Shape of roof

ii. Slopes of levels

iii. Types of coverings

iv. Falls to gutters and gutters

v. Roof lights

vi. Possible type of construction
Note, on simple houses the roof plan is super imposed over the floor plan.

C. Services plan showing the arrangement of:

i. Electrical layout

ii. Plumbing and internal drainage layouts

iii. Air-conditioning or other mechanical services
Note – on simpler houses the electrical layout and plumbing layouts are superimposed on the floor plan.

Bracing Plan

a. The wind load kilo newton force required and the values provided in each direction.

b. All bracing clearly lined with a legend if necessary referring to each bracing type.

c. This plan can also contain the location and type of each tie-down anchor.

Cross Sections

a. These views should be taken through the highest and widest points of the dwelling and should reveal details or facts which are otherwise concealed.

The more this drawing reveals the less disputes are encountered with subcontractors and owners. Where necessary, additional sections may be required should the structure greatly differ in other cross sections.

b. Ceiling and door heights can be applied here as well as wall lining types.

Wall Details

a. These are best taken through a typical opening. This should be in 1:20 or larger scale and with as much information as possible.

b. Fastenings and spacings for roof to wall plate, wall-to-floor and floor to footing connections.

c. Brick veneer tie type and their spacings.

d. Placement of flashings, D.P.C.'s weepholes and spacings.

e. Termination point for underslab PVC membrane.

f. Termite protection methods.

Construction Details

a. Sections through external walls, footings and roof.

b. Plans, sections and elevations of staircases.

c. Any room or part of the building where the setting out of which is difficult or which involves extensive fittings or varying tile heights to walls, fixtures such as:

   i. Kitchens

   ii. Bathrooms

   iii. Utility rooms

   iv. Special purpose rooms

   v. Laundries.

d. Windows and doors detailed specifications.

e. Part elevations of any part of the building containing special features such as:

   i. Entrances

   ii. Special forms of construction

   iii. Balconies

   iv. Ornamental work.

Using and Reading Plans

a. Attach a set of plans to a panel of ply or hardboard and keep it out of the sun on-site during construction. Consider plastic lamination.

b. When alterations are made during construction be sure to mark these clearly on the plans.

c. Always take measurements from the marked dimensions ***not*** by scaling off the plan

d. Room dimensions are always taken from the rough stud edge.

e. Broken lines on internal walls indicate bracing walls.

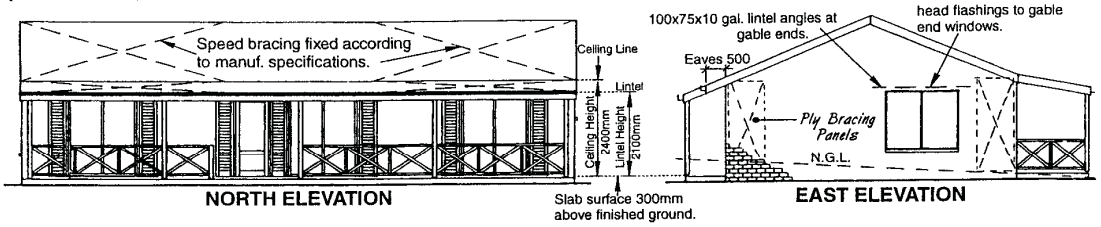
f. Broken lines on the foundation plan represent the footing width.

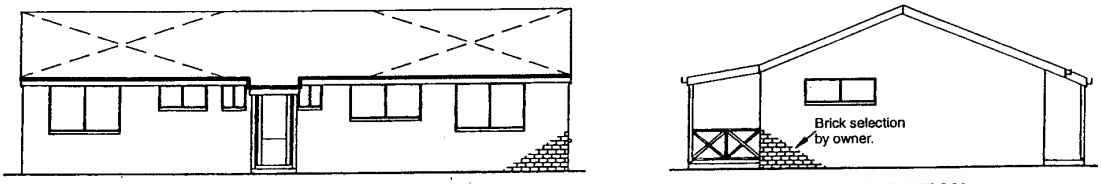
g. Ground lines are indicated on elevations to reveal the amount of subfloor materials required and as a footing construction guide. If a construction method or fastening is not marked on the plans or specifications, check with manufacturer's instructions or with a Local Building Authority.

Source: The Australian House Building Manual Author Allan Staines Publisher Pinedale Press

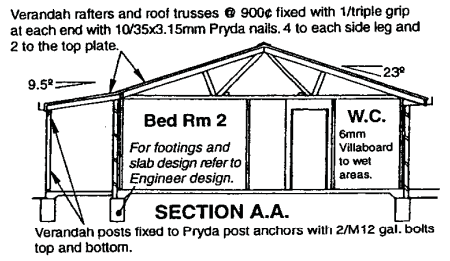
Typical House Plan Example

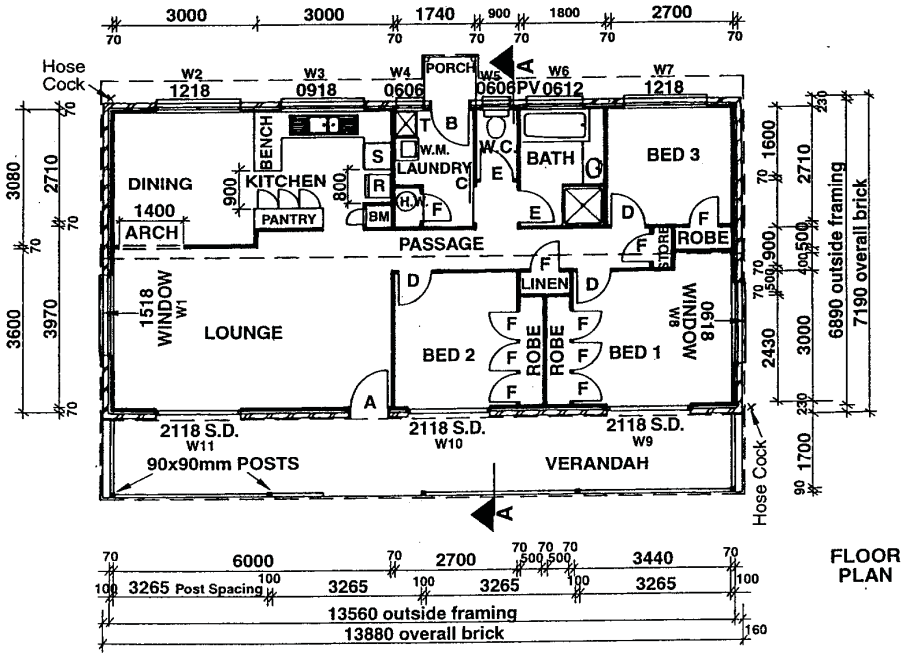
(photo reduced)





WINDOW & DOOR SCHEDULE			DOOR SCHEDULE		
NO.	SIZE	TYPE	DOORS	SIZE	TYPE
W1	1500x1810	Bronze Anodised Sliding Windows	A	2040x870	Sel. Exterior Solid
W2	1200x1810	" "	B	2040x820	Sel. Exterior Hollow Core
W3	.900x1810	" "	C	2040x820	Sel. Sliding Hollow Core
W4	.600x.610	" "	D	2040x770	Sel. Hinged Hollow Core
W5	.600x.610	" "	E	2040x720	" "
W6	.600x1210	" "	F	2040x620	" "
W7	1200x1810	" "			
W8	.600x1810	" "			
ALUMINIUM SLIDING DOORS			W.C. door hinges to be detachable from the outside or to be hinged to open out.		
W9	2100X1800	Bronze Anodised Sliding Doors			
W10	2100X1800	" "			
W11	2100X1800	" "			





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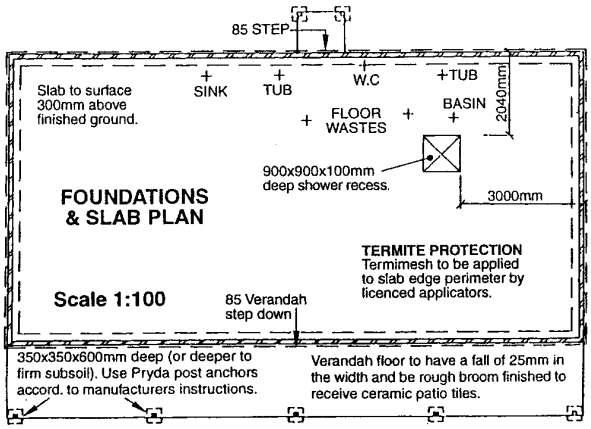
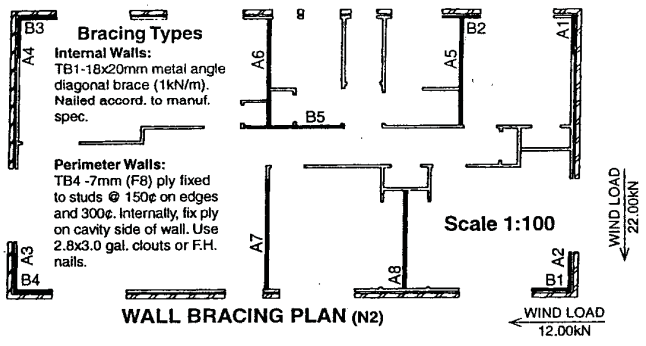
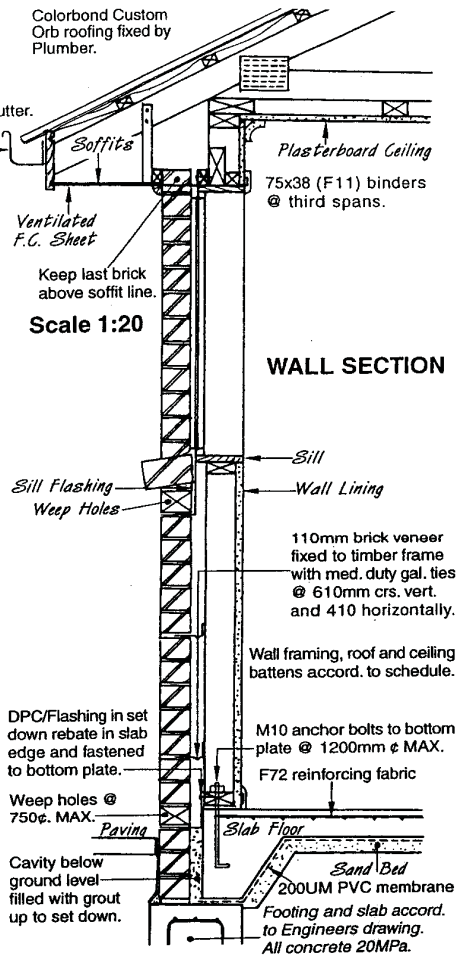




MARK	TYPE	LENGTH	RESISTANCE	UNIT	TOTAL	MARK	TYPE	LENGTH	RESISTANCE	UNIT	TOTAL
A1	TB4	900	2.02	900	2.020	B1	TB4	900	2.02	900	2.020
A2	TB4	900	2.02	900	2.020	B2	TB4	900	2.02	900	2.020
A3	TB4	900	2.02	900	2.020	B3	TB4	900	2.02	900	2.020
A4	TB4	900	2.02	900	2.020	B4	TB4	900	2.02	900	2.020
A5	TB1	2700	2.70	2700	2.700	B5	TB1	2400	2.40	2400	2.400
A6	TB1	2700	2.70	2700	2.700						
A7	TB1	2700	2.70	2700	2.700						
A8	TB1	2400	2.40	2400	2.400						
Nominal Bracing [External Walls Sheeted 1Side-0.3kN/m]					1.860	Nominal Bracing [External Walls Sheeted 1Side-0.3kN/m]					1.950
Nominal Bracing [Internal Walls Sheeted 2Sides-0.5kN/m]					3.300	Nominal Bracing [Internal Walls Sheeted 2Sides-0.5kN/m]					6.700
Total Resistance					23.740	Total Resistance					19.130
Total Wind Load					22.000	Total Wind Load					12.000



TIMBER SPECIFICATION

External Framing [Seasoned F5 Softwood or F11 Hardwood]

Studs @ 450mm ¢ [Notched] - 70x45 [F5] or 70x35 [F11]
[Not Notched] - 70x45 [F5 or F11]

OPENINGS	STUDS	LINTELS [F5] or	LINTELS [F11]
900	1 common stud	45x70mm	45x70mm
1200	2 common studs	140x35mm	90x35mm
1800	2 common studs	190x35mm	140x35mm

Top Plate [Not Trenched] - 70x70 [F5] or 45x70[F11]
Bottom Plate [Not Trenched] - 70x70 [F5] or 45x70[F11]

Internal Framing [Seasoned F5]

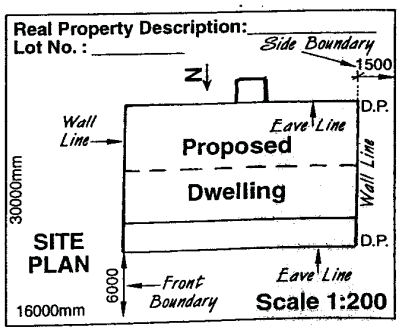
Studs @ 450mm ¢ - Top and Bottom plates - 70x35mm

Roof Trusses [to Manu. Spec.] @ 600 or 900mm ¢ fixed as on 'A-A'

Roof Battens [F11]
38x75mm @ 1200 ¢ MAX. Fixings to each crossing.
[*Within 1200mm of Roof Perimeter*]
HWD Trusses @ 600mm ¢ - 1/75x3.75mm dia. grooved nail.
Pine Trusses @ 600mm ¢ - 2/75x3.75mm dia. grooved nails.
HWD Trusses @ 900mm ¢ - 2/75x3.75mm dia. grooved nails.
Pine Trusses @ 900mm ¢ - 1/75 No.14 Type 17 screw.
[General]
Pine Trusses @ 900mm ¢ - 2/75x3.75mm dia. grooved nails.
[*Remainder*] @ 900mm ¢ - 1/75x3.75mm dia. grooved nail.

FLOOR AREAS

House	100.07 sq.m.
Verandah	24.98 sq.m.
Porch	1.14 sq.m.
Total	126.19 sq.m.



Proposed Residence for.....

At .....

Scales 1:100 (except where otherwise indicated).
Wind Load N2
Measurements take precedence over scale. Check measurements on-site.
All construction work to be in accordance with the B.C.A. and the specific Australian Standards and Local Council requirements.

INTERPRETING THE DRAWINGS (2)

LEARNING ACTIVITY 41

Using your own drawings or those provided by the Trainer, view the drawings and nominate what should be in each of the following. Provide a brief description of each selection.

Survey Plan

Site Plan

Floor Plan

Footing Plan

Roof Plan

SPECIFICATIONS

A specification sets out the technical requirements of the work. It is a direct explanation of the drawings, and with them serves three purposes:

1. First, as a full and detailed description of the project, so that bids (quotes/prices) may be properly compiled.
2. Second, as a mandatory requirement for materials and quality of workmanship during construction.
3. Third, as legal evidence in the event of litigation. The specification is therefore a most important document and must be prepared individually for each project.

A specification may comprise at least three or four parts:

a. General Clauses covering the scope of the work, any special conditions, design criteria, and the like.

b. Materials, including tests.

c. Construction workmanship and tests.

d. Machinery and commissioning tests.

In each part the sections of work are dealt with in some predetermined sequence. Generally it is convenient to follow the approximate sequence of the work itself, so that one begins with preliminary items, site preparation, excavation, etc, and finishes with painting, site restoration and cleaning up.

In each case there will be a place for the use of some standard specifications, as well as for particular requirements applicable pre-eminently to the particular project in hand. In all cases it will be necessary to decide whether to specify method or performance.

MATERIAL SPECIFICATIONS

These cover the type and quality of each material required in the project together with its treatment and testing by the supplier.

WORKMANSHIP SPECIFICATIONS

These cover the use of these materials in the project, their fabrication into the structure, the method and order of their installation, the quality of labour to be employed, the standard of workmanship required, and the tolerances permitted.

MACHINERY SPECIFICATIONS

These cover the capacity, performance, and operation of all permanent plant to be installed under the contract, and the commissioning tests necessary to demonstrate its adequacy.

DESIGN SPECIFICATIONS

These are necessary when structural or other engineering design forms part of any contract. Hence the full criteria governing the design and safety of the works should be precisely defined, together with the owner's requirements for submission of detailed specifications, and so on.

Reference to Standards

Whatever the category of specification, standard codes of practice and a multiplicity of materials specifications published by the various governmental, standards authorities and materials suppliers are of great assistance. They are incorporated into the project specifications by reference only, thus reducing the volume of the document.

Note: The tender drawings for any construction project should preferably be completed before any attempt is made to draft the specification or to take off quantities, so as to avoid conflict or ambiguity between them.

Above all, the specifications must be clear and specific, so that the Builder and the owner's representative on the site may both know what is required. It should set out very concisely and clearly the obligations of the Builder to do, or to refrain from doing, those things which are respectively desirable or undesirable for the successful and satisfactory execution of the work.

Who is NATSPEC?

NATSPEC is the trading name of Construction Information Systems Limited, ABN 20 117 574 606.

NATSPEC, founded in 1975, is a not-for-profit organisation that is owned by the design, build, construct and property industry through professional associations and government property groups. It is impartial and is not involved in advocacy or policy development. NATSPEC's major service is the comprehensive national specification system endorsed by government and professional bodies. The specification is for all building structures with specialist packages for architects, interior designers, landscape architects, structural engineers, service engineers and domestic owners.

NATSPEC's aims are to provide economies of scale for its shareholders and to improve the quality of construction in Australia via the provision of information, tools, products and services.

Source: Extract from the Housing Specification New South Wales Newcastle Master Builders Association 2004.

F. CARPENTER

Timber Generally F1:

Timber shall comply with the provisions of AS1720.2 and/or AS1684 and referenced standards, and shall be of the class specified. It should be reasonably straight grained and free from those defects which might affect its durability and/or strength. Sizes of timber for constructional purposes to be nominal sizes mentioned with allowable tolerances as proved AS 1684. Scantling timbers to be in long lengths, accurately cut and fitted, well spiked and securely fixed.

Bracing and tie-down:

The amount of bracing and tie down fixings required to suit the building design and the wind environment of the site are to be calculated in accordance with AS1684 or NSW Timber Framing Manual. Details of the bracing and tie-down design are to be shown on plan.

If the design wind speed or the nature of the building are outside the scope of AS1684 or NSW Timber Framing Manual then the frame, including bracing and tie downs, is to be designed by a Structural Engineer.

Floor Framing:

All Floors not specified to be concrete are to be framed at level shown. Plates and bearers are to be laid true and level. Floor structure sizes and spacing are to be in accordance with AS 1684 or as specified by a Practicing Structural Engineer.

INTERPRETING THE SPECIFICATION

LEARNING ACTIVITY 42

Using your own drawings and specifications or those provided by the Trainer, find the sections relating to Carpenter and describe what detail is set out in each of the sub sections of the Carpenters Specifications. Provide a brief outline of the content. Try to find at least 5–7 of the sub sections.

1

2

3

4

5

6

7

DISCUSSION NOTES

SELF TEST QUESTIONNAIRE

SELF TEST 20

QUESTIONS	REF. PAGE
1. What are the two types of drawings prepared?	
Answer	**3**
2. What information should be shown on a sketch plan?	
Answers	**3-4**
3. Be able to describe the following:	
Plans	
Elevation View	**5**
Section View	
4. What are the most common used scales for drawings?	
Answers	**7**
i. iii.	
ii. iv.	

QUESTIONS	REF. PAGE
5. What information would you expect to see on the following:	
Survey Plan	**8**
Site Plan	**8**
Floor Plan	**9**
Section and Elevations	**9**
6. What is the purpose of a specification?	
Answer	**15**
7. Name the parts of the specification	
Answer	**15**

ESTIMATING

'Estimating' is the technical process of predicting costs of construction.

Adapted from The Australian Institute of Building Code of Estimating Practice for Building Work – Third Edition.

AN OUTLINE OF THE ESTIMATE

It has been said that a builder requires only five resources. These are often referred to as the 5 M's:

- Money
- Material
- Men or Labour
- Machines or plant and scaffold or equipment
- Method and management.

In reality, the client – in the case of the owner-builder –provides the first 'M' in return for the provision by the builder/contractor of the remaining four.

The estimate then should be the prediction of the total net cost of these four resources consumed in the proposed construction.

In estimating, these four resources are referred to as the *four components* of net cost and are generally further separated into direct or indirect costs.

COMPONENTS OF NET COST

DIRECT COSTS

- Materials
- Men or labour
- Machines or plant and scaffold.

INDIRECT COSTS

- Method and management
- Overheads or on-costs
- (Specific project and general).

The estimator's task would be lightly defined as simply listing, pricing and totalling all the components of net cost to a proposed project. This sounds simple enough, but can in fact be a gigantic task and a confusing one if the sequential steps are not carefully planned and understood to avoid the chaos, omission or duplication which can so easily creep into figure work.

Adapted from The Australian Institute of Building Code of Estimating Practice for Building Work – Third Edition

The estimate is therefore subdivided into an orderly sequence of sections and subsections which, when brought together, will completely cover every aspect of cost involved. An estimate to larger works, for which bills of quantities are provided, is generally subdivided into trade areas and each trade is further divided into the various items of work within that trade.

In cottage estimating, it is a common and convenient practice to use a subdivision related more closely to the sequence of construction and expenditure to the trades or subcontractors or suppliers contributing to that construction and to the actual invoices and payments which will constitute the costing records of the completed job.

Methods of subdivision and consequent build-up of the estimate and the various formats and sheet rulings used will vary from office to office but it is most important that you understand this planned approach and gain a general overview of the whole estimate, before becoming blindly involved in some obscure part of it.

The manner, in which contractors intend to perform the work themselves or sublet the work, will influence their build-up of the estimate, for the task of estimating is really shared by all involved in the contract, and the degree of figure work required of the main contractor will vary from trade to trade.

Examples could be used here to clarify this last statement, so taking a small builder who only employs 2 carpenters on a wages basis, the following four (4) different forms to trade estimate may apply:

1. To the trade of carpentry, this contractor will provide all materials, wages, labour, plant and scaffold, hence his estimate to this trade will be fairly involved and will include the following steps:
    - Take quantities of all materials required
    - Price materials
    - Estimate hours of labour
    - Establish hourly cost rate of carpenter
    - Price labour
    - List items of plant and scaffold and duration
    - Obtain charge-out of hire rates
    - Price plant and scaffold
    - Sum price of all components to establish total net direct costs to carpentry.
2. To the trade of bricklaying, the builder will provide all the materials, use a team of subcontract bricklayers providing labour, plant and scaffold at agreed rates and a subcontract brick cleaner. This trade estimate must include the following steps:
    - Take quantities of all materials required
    - Price materials
    - Apply subcontract rates to labour, plant and scaffold
    - Apply subcontract rates to brick cleaning
    - Sum all costs to establish total net direct costs to brickwork.

Adapted from The Australian Institute of Building Code of Estimating Practice for Building Work – Third Edition

3. To the trade of solid plastering, the builder will engage a team of supply and fix subcontractors who will provide all materials, labour, plant and scaffold for agreed rates per m^2 for work in place. Here the estimate will include only three steps:
    - Take quantities of the various work in place
    - Apply respective sub contract rates to quantities taken
    - Sum all subtotals to establish total net direct costs to plastering.
4. To the trade of roof tiling, the builder will engage a supply and fix subcontractor who will provide all materials, labour, plant and scaffold for a quoted lump sum figure. The estimate here will involve only two tasks:
    - Provide documentation and call for quotations
    - Receive, consider and select a quotation to cover all direct net costs to roof tiling.

By applying one or a combination of these approaches to each trade or section of the work, the total direct costs of all components to main contractor's and subcontractors' costs to the bricks and mortar of the job is sometimes referred to as the body of the estimate.

This body of the estimate does not include the fourth and subsequently determined component of cost, the indirect costs of the main contractor. These indirect costs, are further subdivided in the estimate plan.

Indirect Costs
Projects overheads preliminaries
Relating directly to that particular project or contract.

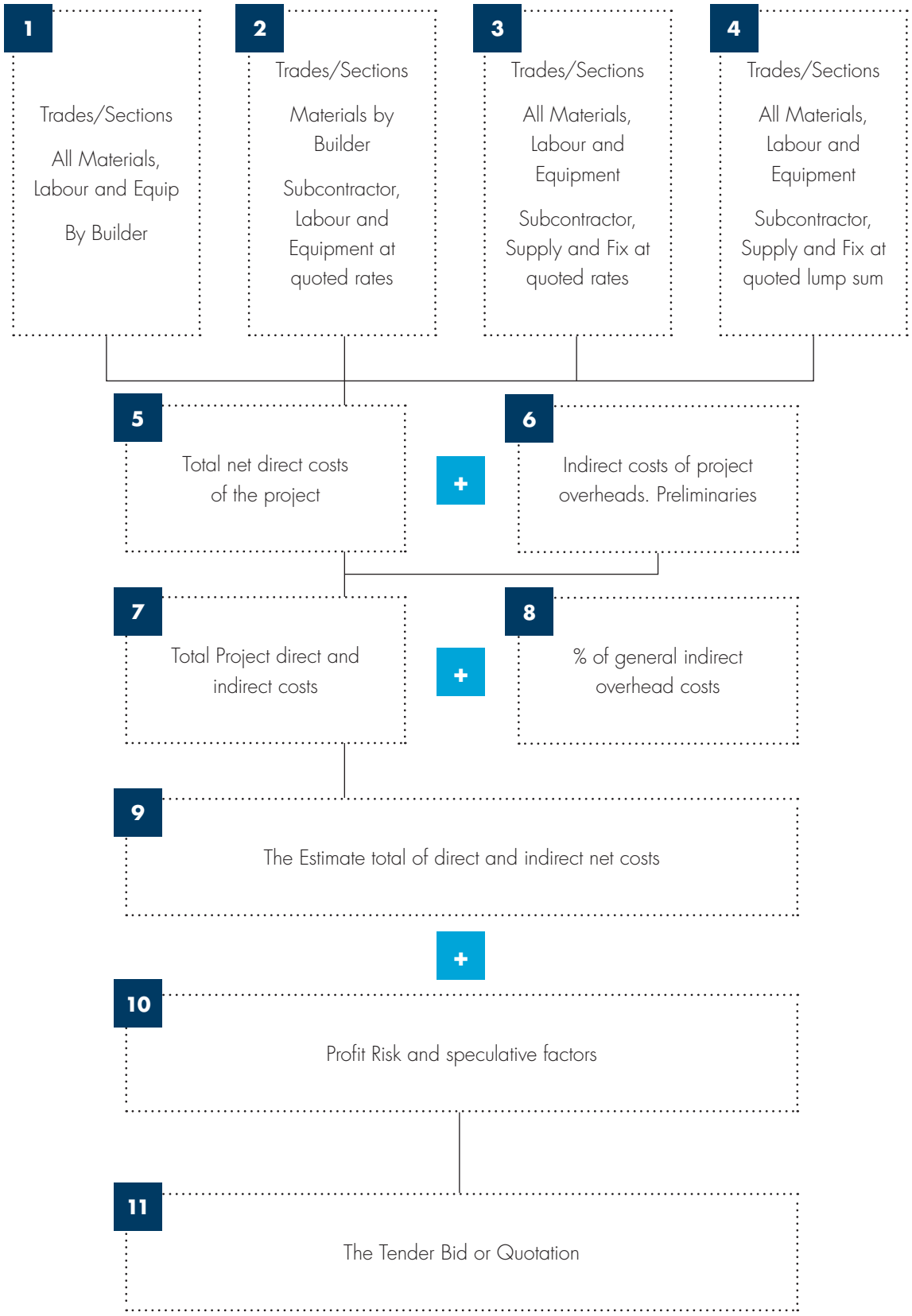
Having totalled all estimated direct, and indirect net costs of the proposed project, the estimate is complete. This estimate may then be converted into a firm price, a quote, a bid, or a tender after final additions or adjustments covering inflation, risk, profit and speculation.

The bid or tender is that document tendered by the contractor and stating, to a potential client, those monetary and other considerations required by that contractor in return for the construction of the proposed specified works.

Finally, if the contractor's tender was successful, he would then be required to enter into a form of contract with the client.

Adapted from The Australian Institute of Building Code of Estimating Practice for Building Work – Third Edition

DIAGRAMMATIC LAYOUT OF ESTIMATE COMPILATION



Adapted from The Australian Institute of Building Code of Estimating Practice for Building Work – Third Edition

EVALUATING THE TRADES

LEARNING ACTIVITY 43

Choose 2 different trades. Provide a list of what needs to be considered in each of their estimates. Refer to Page 26 as a guide as to what should be included in each list.

Trade No. 1 – Name:

What cost should be considered when determining the total cost of this trade?

1

2

3

4

5

6

7

8

Trade No. 2 – Name:

What cost should be considered when determining the total cost of this trade?

1

2

3

4

5

6

7

8

MATERIALS CONTROL

The control of materials can be twofold. First the Owner-builder is required to order the materials direct from the supplier and arrange for the delivery to the site. Second, the contractor is required to supply the materials as part of a supply-and-fix contract.

When supply-and-fix contractors are used the ordering and delivery of the materials is the responsibility of the contractor and the Owner-builder does not have to be concerned with the quantity of the material ordered, except if the contract is on a cost-plus basis. When a cost-plus contract is negotiated with a contractor, Owner-builders should be careful that any material purchased under the contract is purchased for the best price from the supplier and passed on to the Owner-builder at the best price by the contractor.

To gain control over the materials used on the project Owner-builders should:

1. Separate the materials to be used on the project into two categories:
    - Those supplied by the Owner-builder
    - Those supplied by supply-and-fix contractors.
2. Carefully estimate the quantities of materials that the Owner-builder is responsible to purchase, check with suppliers to make sure that the method used is compatible with their methods and quantities, ie: timber is only sold in multiples of 300 mm. In most areas it could cost a lot more money if this fact is not understood.
3. Group all materials that can be purchased from the same supply source, ie: scantling timber, fixing timber, hardware and the like.
4. Get at least two prices for each group of materials from selected suppliers so that you have already eliminated quality variables and can choose the lowest price. It is very difficult to compare two prices where there are both quality and quantity variables to take into account.
5. Tabulate all material quantities and material groups and shown preliminary estimates and quotations. As the project proceeds show a running total of the positive or negative state of the materials purchase account.
6. Note the advance warning suppliers need to assemble and despatch orders and make sure this advanced warning is given. Owner-builders do not want either late or early deliveries.
7. Note the best discount and credit terms that are available from the suppliers and attempt to gain the most advantageous position.
8. Compare all delivery dockets with the load delivered to check against shortfalls in delivery, and then check the delivery docket carefully against the invoice to avoid over-charging.
9. Take care when asked for payment in advance. Check whether this is an industry norm for that type of supplier – brick companies commonly want 100 percent before delivery – then pay only the minimum that is required and as close to the final delivery date as possible.

MATERIAL CONTROL

LEARNING ACTIVITY 44

Prepare a plan to take control of the purchase and delivery of the materials required for the site.
Do not forget to include the materials that the Subcontractor will purchase or provide.

SUBCONTRACTOR RELATIONSHIPS

Source: The Guide to Best Practice – Module 10 – Department of Industry Science and Tourism

Benefits of developing good relationships with subcontractors

Developing a good relationship with the subcontractors has many measurable advantages. These advantages include:

- Improved performance and reliability
- Greater commitment to quality standards
- Reduced defects
- Improved construction processes, which will assist in reducing waste and decreasing costs
- An organised work-site.

Finding good, reliable subcontractors

Finding good subcontractors can be a difficult task, especially in times of high industry activity when labour is short. Best practice companies will argue that time spent on selecting suitable subcontractors will save untold problems and your valuable time in the future. Having access to quality and customer focused subcontractors can be one of the builder's greatest assets.

Many builders rely on 'word of mouth' to seek out new subcontractors but there are also other ways of finding good subcontractors. You can contact your local building associations for a list of registered subcontractors; visit building sites and new housing estates to see which subcontractors are working; check with local suppliers to see who is doing the most business and, importantly, who gives attention to quality products; or consider placing an advertisement in the local paper and industry magazines which clearly specifies your requirements.

Consider the advantages and disadvantages of large and small subcontractors and determine which type best meets your business requirements. The list below provides some variations between small and large subcontractors. The subcontractor you choose should be flexible enough to fit in with your company's method of operation and share common goals and objectives.

Locating suitable subcontractors is best carried out well before you need them. During times of high activity you are at your busiest and usually cannot devote the necessary time required to make an informed decision. Likewise, quality subcontractors are also harder to find during these times. Keep a file of suitable subcontractors and try to have at least a few to choose from to complete specific tasks.

LARGE SUBCONTRACTORS

- Several crews
- Greater resources
- Financially stable
- Higher production rates
- Management support
- More accessible.

SMALL SUBCONTRACTORS

- Fewer crews
- Lower overheads
- Requires quicker pay
- May be specialised
- 'Hands on' owner
- More responsive.

Source: F. Gary Lewis, 'Managing Subcontractors for Results.

Standards for engaging subcontractors

In determining which subcontractors meet your needs and objectives, it is important to adopt a systematic approach to engaging subcontractors and setting the standards you want them to meet. Best practice companies consider many factors in addition to 'price' when selecting subcontractors with a view to achieving high product quality and total customer satisfaction.

Some important factors to consider are:

- **Financial stability:** Take time to establish how long the subcontractor has been in business. The longer in business the more likely they can satisfy this criterion. Ensure they give permission to check credit references and suppliers
- **Construction skills:** Satisfy yourself that the subcontractor has the necessary construction skills to complete the task to a high standard
- **Business skills:** Evaluate their business skills through their past record and through checking references thoroughly
- **Attitude to service and quality:** Again follow up references and speak to customers to determine the quality and timeliness of the subcontractor's work to date. Check their ability to be polite and responsive with customers
- **Meeting legal and administrative requirements:** Do they accept and use appropriate contract documentation? Do they have necessary insurance policies such as workers compensation, home warranty and public liability?
- **Commitment to improvement:** Find out if the subcontractor is actively applying the latest innovations and practices in their particular field
- **Availability of equipment:** Do they have the necessary equipment to complete the task and is it maintained properly? Try to visit sites where subcontractors are working and see how they are performing.

When you have satisfied yourself concerning a subcontractor's competency and ability to meet your objectives, compare them using standard criteria.

When asking preferred subcontractors to quote on particular projects, consider what is 'value for money'. A low quote does not necessarily guarantee the lowest overall job cost. Time spent following up subcontractors, repairing defective or shoddy work or having to provide materials may turn a seemingly low quote into one that cost your company considerably more. Then there are the longer-term costs relating to customer dissatisfaction and the company's reputation.

Endeavour to ensure subcontractors make accurate, all-inclusive quotes by providing sufficient detailed information in the job brief. Provide drawings and job specifications where possible and at the very least describe the qualitative requirements of materials and workmanship for the project. If you use a formal contract provide a sample copy in your brief. Standardise the quoting process to allow for an equal comparison. Remember, if there is any ambiguity concerning the job tasks and materials required or information is vague, subcontractors will be inclined to adjust their quotes upwards to cover the unknown.

Time spent on qualifying subcontractors and providing sufficient detailed information in the bidding process will establish the framework for a good relationship with subcontractors who best fit your overall objectives and control costs.

EVALUATING THE SUBCONTRACTOR

LEARNING ACTIVITY 45

Prepare a checklist of what factors you would consider when choosing a subcontractor. The first 5 have been provided as a guide. For this exercise consider 2 different trades.

TRADE	FACTORS	☑
	1 Financial Stability	
	2 Skill	
	3 Reputation	
	4 Quality and Service	
	5 Price	
	6	
	7	
	8	
	9	
	10	
	1	
	2	
	3	
	4	
	5	
	6	
	7	
	8	
	9	
	10	

TRADE ORDER

A generally accepted Trade Order for compiling a Builder's Take Off would be:

- Preliminaries
- Excavator and labourer
- Concretor
- Bricklayer
- Metalworker
- Woodworker
- Roofer
- Internal linings
- Plasterer
- Wall tiler
- Plumber
- Drainer
- Gasfitter
- Electrician
- Glazier
- Painter
- Groundworks
- Provisional items.

PRELIMINARIES

All projects undertaken have a number of preliminary requirements to allow the project to proceed in an orderly and manageable manner.

These items are generally those that are either carried out by the builder or his representative on site or the builder is responsible for its provision e.g. Supervision/Cranage/Scaffolding.

Setting down all of the items associated with the start up of the project such as:

- Building fee.
- Long Service Corp fee.
- Road opening fee.
- Council Security deposit.

Temporary supply fees for:

- Water
- Electricity
- Telephone
- D.I R. Fees
- Hoarding fees
- Site sheds
- Security fences
- Hoardings
- Surveyors fees
- Setting out costs
- Temporary access etc.

PRELIMS AND SITE EXPENSES	HOURS	COST
Council fees on plans		
Council hoarding fee		
Council road crossing fee		
Water for the works fee		
Electric light and power		
Water connection		
Electricity connection		
Telephone		
Sanitary service		
Trade refuse		
Sheds and Storage		
Security services		
Fences and hoardings and protection of adjacent properties		
Notice boards		
Temporary access		
Plant and equipment hire		
Job insurance		
Fees to surveyor		
Site or foundation testing		
Handling sundry materials		
Interim site cleaning		
Cleaning for handover		
Maintenance		
Safety precautions		
Regulatory fees and subscriptions		
Total		

SITE CONSUMABLES	COST
Abrasives	
Cleaning materials	
Filler	
First aid supplies	
Fixing materials (nails, screws, etc.)	
Explosive powered tool supplies	
Adhesives	
Protectives	
Protective clothing	
Total	

PRELIMINARIES

LEARNING ACTIVITY 46

Using the list on the previous page as a guide, determine the preliminary costs for ***your*** project.

Excavator and Labourer

Would allow for:

- Site clearing
- Bulk excavation
- Cut and fill
- Bank stabilisation
- Excavation for trenches
- Boring for piers
- Backfill
- Removal of soil.

And other associated matters, such as tip fees, materials as found on site, type of equipment to be used, if pumping necessary etc.

Concretor

Includes the supply and placement of concrete in:

- Footings
- Slab on ground
- Suspended slabs
- Stairs etc.

Reinforcement and formwork can either be included with the concrete or billed separately.

At the time of billing the work, all the necessary notes should be made about the method of placing, curing and testing requirements, type of formwork and the type of concrete face to be achieved.

Bricklayer

Includes the supply and laying of bricks and also includes:

- Mortar requirements
- Wall ties
- Frame ties
- Arch bars and angles
- Damp proof courses
- Flashings
- Ant caps
- Expansion joints
- Caulking compounds
- Scaffolds
- Cleaning brickwork.

Metalwork

Includes the supply of:

- Structural steel
- Steel door frames
- Fire doors
- Ducts and flues
- Balustrade and handrail
- Security doors
- Ornamental grilles
- Roller doors
- Metal window frames and sashes.

Woodworker

Builders often bill this section in two parts, first carpenter and second carpenter.

First carpenter includes supply and fixing of:

- Joists and bearers
- Framework
- Flooring
- Roof timbers traditional
- Trusses Fascias etc.

Second carpenter includes the supply and fixing of:

- Window frames
- Door frames and doors
- Fixing such as architraves
- Skirting etc Timber linings
- Cupboard fitments.

Roofer

Includes the supply and fixing of:

- Roof coverings
- Tile
- Metal
- Slate etc.

Internal Linings

Includes the supply and fixing of plasterboard to ceilings, walls etc. including cornices and metal corner strips, W.R. board to wet areas.

Plasterer

Includes the supply and application of:

Solid plaster work to brick walls, blockwork etc. it may be:

- Single coat work
- Two coat work
- Setting coat etc.

Tile setter – do not forget the waterproofing

Includes for the supply and fixing of:

- Tiling to bathrooms, laundries, kitchens, patios, swimming pools etc.
- Fixed to brickwork, blockwork, W.R. board, compressed board etc.

Plumber

Includes the supply and installation of hot and cold water services, including:

- Lagging
- Stopcocks
- Pressure relief valves
- Wall cover plates
- Connection to main service
- Gutter and downpipes could be taken by plumber or billed separately.

Drainer

Includes the supply and installation of soil and waste drainage and stormwater disposal, all in accord with authority requirements.

Gas fitter

Includes the supply and installation of the gas service to various fittings, including stop cocks, main cocks, pressure limiting valves, bayonet fittings etc.

Electrician

Includes the supply and installation of electrical services and the connection and testing of fittings and fixtures and should cover the determination of supply requirements, the switchboard and safety switches, point of entry brackets, switches, power points and special requirements for pool lighting etc.

The Builder needs to define the extent of work for lighting and power requirements and should indicate the type of light fittings internally and externally, dimming devices and other special requirements.

Glazier

Supply and installation of the various glass requirements. Many items such as windows and doors are glazed before delivery to the site. There are a number of items such as decorative screens, mirrors and frameless window walls that will need glazing on site.

Painter

Includes for the supply and application of paints to internal and external surfaces and should note the type of surface being painted ie. timber, plasterboard etc. type of paint to be used. Staining and polishing and other special treatments should be defined. Wall papering should be measured, clearly noting the type of paper and whether lining paper is required.

Groundworks

Includes pavings, driveways, fencing, landscaping etc. Some of this work may be carried out by the Builder or it may be carried out by specialist subcontractors. It should be carefully described and measured, particularly where surface and sub-surface drainage is required.

Sums, Provisional Sums and Contingency Sum

All the above sums should be listed with a clear description of the item and the amount of money allowed. These items will all require adjustment against the original allowance, at the time of serving the final account.

Note

Many of the foregoing trades will be carried out by specialist subcontractors

The Builder in calling prices for the work, must clearly identify and advise on a number of pertinent items within the scope of works.

- The full extent of the work
- The type of fittings to be installed or finishes to be achieved
- Special requirements by approving authorities
- Who will supply hoisting and scaffolding for the works?
- What is the general construction program?
- Any other matters that will affect the pricing of the work.

TRADE SERVICES

LEARNING ACTIVITY 47

Use the previous pages as a guide, using your own drawings or those provided by the trainer, determine the detail of each trade that you may have to consider in your pricing of the project.

Excavator and labourer

Concretor

Bricklayer

Metalworker

Woodworker

Roofer

Internal linings

Plasterer

Wall tiler

Plumber

Drainer

Gasfitter

Electrician

Glazier

Painter

Groundworks

Provisional items

THE BUILDERS TAKE OFF

Source: Basic Building Measurement – Paul Marsden

The Builders 'Take Off' consists of four basic elements before the application of rates to result in a price. These basic elements are:

1. Item No or letter.
2. Description of the item/activity or process including the calculation.
3. The unit of measurement applied to the particular item/activity or process.
4. The actual quantity measured.

Each section of the 'Take Off' should have a heading relevant to the Trade or process to be carried out.

These sections are generally listed in the same order, as the work would be carried out.

Under each of these headings finer detail is given to each and every item/activity or process to be carried out and can be broken down into individual areas for example particular rooms like kitchen, bathroom and bedroom areas.

Example: Concrete

ITEM	DESCRIPTION	UNIT	QTY	RATE	
A 	Supply, place and finish 20 MPa concrete to 0.6 x 0.4 strip footings in ground in brick courses to required levels. 4.0 x 6.0 + 4.0 + 6.0 = 20 x 0.6 x 0.4 = 4.8	M^3	4.8		

The traditional method of measuring quantities is to manually write the entire take off figures on standard ruled quantity surveying paper. Unfortunately, there is no national standard ruled paper and each office has its own customised ruling. To further complicate the issue, a growing number of practices no longer use paper but input the take off figures directly into a computer. Nevertheless, this text adopts a vertical format quantity survey paper with a traditional manual set out of take off figures. Whilst individual offices may vary, the measurement principles involved should be the same including where computerised methods are employed.

Refer the following page for a sample of the quantity surveying paper used in this text.

The paper is divided into six major vertical columns. The first column, *"ITEM"* is used for the description reference; the second column, *"DESCRIPTION"* is used for the billing; the third column, *"UNIT"* is used for the filling unit; the fourth column, *"QUANTITY"* is used for the billed quantity; the fifth column *"RATE"* is used for the estimated unit rate (i.e. cost per billing unit); and the sixth column is a money column.

ITEM	DESCRIPTION					UNIT	QTY	RATE	$	¢
1			2			3	4	5	6	

The second column, *"DESCRIPTION"* is subdivided into five vertical sub-columns which are used for the measurement process. The first sub-column is used as a factor column, the second for take off figures, the third for extensions, the fourth for locations, and the fifth for side casts.

DESCRIPTION				
1	2	3	4	5
Factor	Take	Extensions	Location	Sidecasts
	Off			
	Figures			

The paper also has facility for the project name, trade and page number to be listed on the top right hand corner. This is important as it acts as a control to avoid missing or misplaced pages and confusion with other projects. It is essential that this information is filled in on every sheet when measuring and quantities.

				Project				
				Trade				
				Page				
ITEM	DESCRIPTION			UNIT	QTY	RATE	$	¢

Example

				Project	'A' Three Bed HomeA			
				Trade	Concrete			
				Page	3			
ITEM	DESCRIPTION			UNIT	QTY	RATE	$	¢
A	Supply, place and finish, 20 MPa Concrete to 0.6 x 0.4 strip footings inground stepped in brick courses (etc)							
	2/4.0	8.0						
	2/6.0	12.0						
		20.0	x 0.6 x 0.4					
				= 4.8	M^3	4.8	$135	

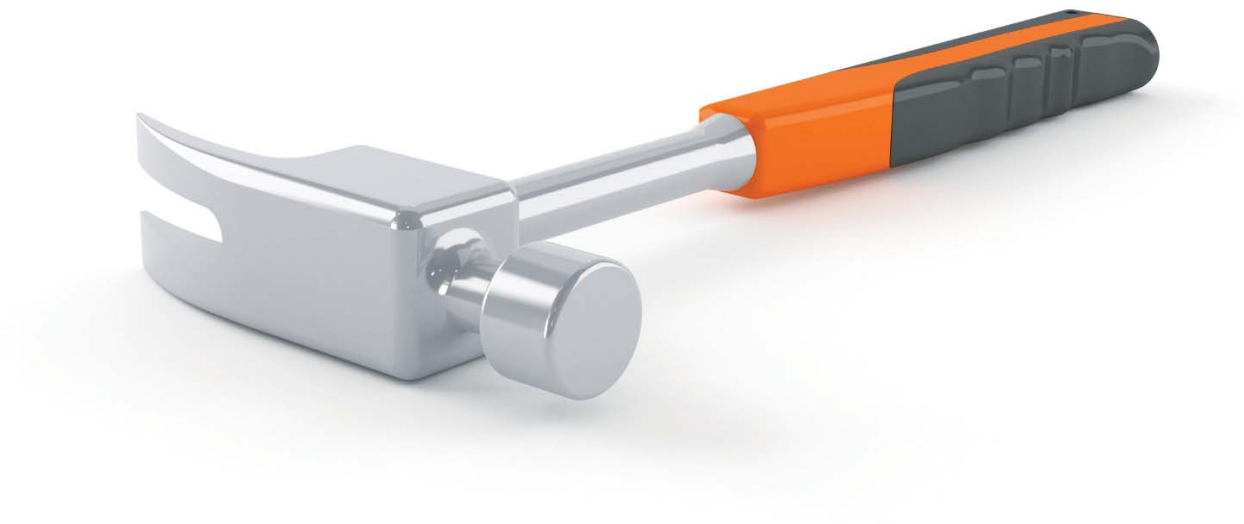
Source: Basic Building Measurement – Paul Marsden

THE GOODS AND SERVICES TAX (GST) CONSIDERATIONS

- Subcontract prices should be submitted "net", i.e. exclusive of GST, with the 10 per cent shown separately as a percentage of the contract price
- Individual prices used in the tender should not include GST. This will enable you to build up a final quotation price and add 10 percent GST on your final price.
    - o Educate your subcontractors to provide a trade price ***plus*** GST.

A sample contract tender may look like this (eg, electricians)

Electrical work	$21, 100	
Overhead/profits	$2, 100	(Not always shown separately)
Total	$23, 200	This is the price to include when pricing your job.
Plus GST (10%)	$2, 320	
Total Subcontract Tender	$25, 520	



TRADE TAKE OFF

LEARNING ACTIVITY 48

Using the notes on the previous pages, choose one trade that would be engaged on your site. Refer to your own drawings or those provided by the trainer. Set out a detailed take off of the trade. Include a description of the trade, measurements, units and quantities. In your own time research the costs of the materials, labour etc to determine an actual cost for this stage of your construction. You may use the take off sheet provided below or create your own.

Project

Trade

Page

ITEM	DESCRIPTION	UNIT	QTY	RATE	$	¢

SUBCONTRACT WORK IN RELATION TO THE TAKE OFF

A good proportion of work in the building industry is carried out on a sub-contract basis.

Calling subcontract prices

Having prepared a "Take Off" for the project, the Owner-builder should be in a position to clearly define the amount and type of work to be performed.

A simple written request setting out the details of the work is preferred to a phone conversation discussing the work to be executed.

The request should define the nature of the work and give sufficient detail to allow the subcontractor to prepare a price for the work. This approach allows quotations for the same work to be better compared and adjudicated.

A typical request for a price for slab on ground work could contain the following information.

- The site has been brought to trim level
- Allow for setting out the slab with the Builder
- Allow for the supply and erection of all necessary formwork
- Allow for the supply and placement of all reinforcement and the vapour barrier. Reo. to be approved by Engineer
- Plumbing work to be co-ordinated with the Owner-builder and Plumber
- Allow for the supply and placement of concrete (20 Mpa 80mm slump) and include for surface finish (steel trowel)
- Allow for concrete curing.

This information clearly establishes the basis for the preparation of a subcontract price.

EXAMPLE

xxxxxxxx date

xxxxxxxxxx Name
xxxxxxxxxx Address
xxxxxxxxxx

Dear xxxxx

Notice To Tenderers

You are hereby invited to submit a Quotation for the Sub-Contract works forming part of the Works at

.....

.....

Being tendered by <insert your name>.

1. The Sub Contact Works are

.....

2. The Tender Documents are

.....

The following documents are available for your inspection at <insert address/location where documents can be inspected>

.....

.....

3. The proposed conditions of Sub Contract (Parts A and B) are available for Inspection at <insert address/location where documents can be inspected>

   Attached are the following:
   1. Tender Form
   2. Sub Contract Front Page, Schedule 1 and Schedule 2 (As applicable)
   3. Scope of Works
   4. Drawings (if applicable)

Yours faithfully,

I.M. Wright – Owner-builder

(ii) Tender Form

.....

.....

.....

.....

of .....

Phone ..... Fax .....

Hereby tenders to perform the following sub-contract works.

.....

.....

.....

.....

.....

.....

In accordance with the following tender documents

.....

.....

.....

.....

.....

Being part of the works being tendered by <insert the Owner-builders name> of

.....

Phone ..... Fax .....

at .....

.....

For the firm lump sum of .....

.....

Any tender inclusions/exclusions/qualifications are attached to this tender form and marked as such.
The above firm lump sum price remains capable of acceptance for a period of

.....

Tenderer .....

Dated this ..... Day of ..... 19 .....

Signature .....

(iii) Tenderer's Declaration

In the preparation of and submission of this tender I/we declare that I/we have:

a. Become conversant with the 'Sub-Contract Works' and the 'Works'.

b. Become familiar with the site of the 'Sub-Contract Works' and the 'Works'

c. Examined and understood the Tender Documents.

d. Examined and understood items 3 and 4 of the 'Notice to Tenderers'.

e. Examined and understood items (I), (ii) and (iv) of the 'Notice of Tenders'

f. Have made all reasonable inquiries

g. Have given regard to circumstances, risks, possible contingencies which may arise.

h. Have no conflicts of interest.

i. Have the qualifications, knowledge, ability and resources to successfully complete the Tender.

j. Am available and can readily apply the qualifications, knowledge, ability and resources to successfully complete the Tender.

I hereby Tender to undertake and complete the requirements of this Tender for the consideration Tendered:

Tenderer .....

Dated this ..... Day of ..... 20 .....

Signature .....

Witness .....

(i) Conditions of Tendering

The conditions of tendering do not form part of the proposed Sub-Contract.

The Tender will be an offer, which will be capable of acceptance.

The Company reserves the right to reject non-conforming tenders.

This Company is not bound to accept the lowest tender.

Tenderers are required to complete the attached Tender Form and Tenderer's Declaration.

Tenders are required to be submitted by .....

Tenders are required to be lodged at .....

Tenderers will be deemed to have fully informed themselves of the documents Sub-Contract (items 3 and 4) on the attached 'Notice to Tenderers'. No claims will be recognised by this Company for a Tenderers' failure to fully comply with this condition.

Any inquiries during the Tender period are to directed to .....

.....

At .....

Any addenda to Tenders during the Tender period will be issued to all Tenderers.

SCOPE OF WORK FOR EACH TRADE

LEARNING ACTIVITY 49

Use the notes on the previous pages and those made in *Learning Activity 8* as a guide. Prepare a ***Scope of Work*** from which a Subcontractor is able to provide a detailed price. Remember to provide a copy of the relevant drawings and specifications relating to each trade.

The following is an example only.

Scope of Work			
Trade Detail			
Other Provisions			

Drawings attached Yes No Not Applicable

Closing Date of Tender Submission

THE CONTRACTORS QUOTATION

Source: Back to Basics Business Training Pty Ltd

It is absolutely ***vital*** the quotation is accurately and professionally prepared.

Talk to the Subcontractors and Suppliers, ***check and check again*** that all the prices you have received are firm. Check the starting and completion times. Are they realistic? Can they make a reasonable guarantee the works can be completed in that time?

The information supplied in the quotation is not only meant to inform you how much it will cost to carry out the works, it should also include as much detail as possible to protect the contractor.

The quotation must show the business name and address, telephone numbers, facsimile numbers and most important the contractors Licence Number/s.

Include the site details, drawing/specification numbers if applicable. Copies of drawings where applicable.

There should be as much detail of the scope of work as possible. It should also include what is ***not*** included in the price.

A List of conditions, for example:

- Safety provisions and conditions
- Removal of Debris
- Council Fees etc.

The content

Source: Back to Basics Business Training Pty Ltd

The way a quotation is presented reflects the way that subcontractor will do business.

Basic information/features you need to identify from the quotation are:

1. Quote Number.
2. Business Name and address of Subcontractor. e.g. logo letterhead, pre-printed forms.
3. Contact names and telephone numbers, licence numbers of the Subcontractor.
4. Full names and address of person receiving the quotation along with a contact name and position.
5. Reference to (where provided):
    i. Drawing Numbers
    ii. Specification Reference Numbers (if applicable)
    iii. Tender Name/Numbers (if applicable)
6. Reference to scope of works: eg Construct a 3 bedroom brick veneer (style number or name if applicable) (state site) on Lot ..... Pleasant Place, Dreamsville.

7. The full quotation price on first page, showing it in figures and words, and if GST is inclusive or separate (it is always wise to show the GST amount separate

eg.	$135,000
GST	$13,500
Total Price	$148,500

8. Outline of inclusions – as detailed as possible.
9. List exclusions in detail.
10. List of Prime Cost items.
11. Information relating to the deposit if and when it is required.
12. Fees associated with amended drawings etc.
13. A payment schedule and how/when payment is expected to be paid.
14. Variations – (where it applies) a set out of the terms and conditions relating to the process of variations and the method of paying the variations.
15. The name of the contract they intend to use.
16. ***Do not*** allow the contractor to note on the quotation 'in accordance with contract terms or conditions' – at this point you do not have the contract and would not know what the terms and conditions are. Ask for the terms and conditions to be explained or set out in detail OR ask for a copy of the contract they wish to use.
17. A validity date – How long is the price valid for - it is recommended that an actual date rather than 14/30 days be stated. An actual date does not allow for any confusion relating to what are working days or calendar days.
18. Any customer conditions eg. Access to your site after hours, during construction, safety issues, inspections, etc.
19. Your ability to pay eg. confirmation from lending body – if it is applicable.
20. An attached acceptance form.

It may be possible the Subcontractor may include an attachment called 'Notes to the Tender'
– See example on Page 53.

Acceptance Form

I/we .....

.....

Accept the terms and conditions set out in quotation number ..... date .....

To ..... (scope of work)

.....

.....

.....

.....

At ..... (address of site)

For the sum of $ ..... (figures)

..... (words)

Signed ..... Date .....

Print name .....

Signed ..... Date .....

Print name .....

Witness name .....

Signature .....

Date .....

NOTES TO TENDER

(Attachment to the Quotation)

1. Please note we ***unconditionally*** guarantee that all ***fixed site costs*** included in your tender will remain firm. Under no circumstances will you be required to pay any additional charges.
2. No allowance has been made for possible variations by you and please be aware that if any are made they are an extra to the contract and must be verified in writing, signed for by yourselves and paid for before such variations are commenced.
3. Upon acceptance of this tender we will require a deposit of $.....for planning costs and approvals.
4. When plans have been approved (without modification) we will draw up contracts and arrange with you for their completion. Before we can commence construction we will require confirmation (in writing) from your Lending Authority and you will have made your final choice of selections, colours etc.
5. We have included in our Tender all costs for: Plans, Council Fees, Water Authority Fees, Dept Fair Trading Fees, Underground Power Supply, All Water Sewer and Drainage Connection, Engineers Fees, Surveyor Fees, Temporary Power and Builders Toilet Fees,
6. Allowance has been made for concrete piering through the filled areas to natural ground level only.
7. Guaranteed no more to pay – full price held firm for term of contract. This excludes if:
    a. Rock or shale should be encountered during any part of construction and by any trade, any removal of same necessary to complete the works will be charged as an extra to the contract.
    b. In the event of there being excess soil from a standard cut and fill for slab floors any excess soil will be at owners expense and subject to a contract variation.
8. All banks created by excavation and/or filling by the builder in preparing the site will be the responsibility of the owners. If such excavations and/or filling require retaining walls, dishdrains etc, to be erected either for the builder to continue his works or for any inconvenience that may be caused by adjoining property owners or for any reason that the local authorities may require, then the cost of same will be at owners expense.
9. During the course of construction we will require progress payments and they are as follows:
    a. Initial Deposit with Tender Acceptance of $.....
    b. 1st. Progress Payment of $.....when slab is laid.
    c. 2nd Progress Payment of $.....when tile roof is laid.
    d. 3rd Progress Payment of $.....when fit out is complete.
    e. 4th Final Payment of $.....on practical complete and subject to contract variations. This is the final payment (Total of $.....)

Upon receipt of your deposit we will proceed with the drawing of plans, submission to local council authorities and procedures required to enable us to commence construction. In the event of a building agreement not being entered into, the deposit will be refunded less costs and expenses incurred.

Thank you for your enquiry and we look forward to the opportunity of building your new home.

Yours faithfully,

KEY FACTORS TO CONSIDER IN A QUOTATION FROM A SUBCONTRACTOR OR A SUPPLIER

	Check
Quote Number	☑
Reference to:	
Drawing Number	
Specification Reference	
Tender Number (If applicable)	
Reference to Scope of Work:	
Full Quotation Price in words and figures	
GST shown separately (If not what is the break up of the figures)	
$ (Price) $ (GST) $ (Total)	
Inclusions (Detail Provided – Not Provided)	
Exclusions (Detail Provided – Not Provided)	
P.C's Included (where applicable)	
Deposit to commence if required	
Conditions of the deposit – is it refundable Yes No Not Applicable	
Payment schedule – how and when is payment expected	
Is there provision for Variations Yes No Not Applicable	
If Yes what are the provisions:	
What are the payment conditions for variations?	
Name and Type of Contract	
How long is the Quote Valid for?	
Are there any special conditions Yes No Not Applicable	
If yes what are the conditions:	
Do you have to provide proof of ownership of the property?	
Do you have to provide confirmation from a lending body that you are able to pay?	
Do you have to sign an acceptance form?	

EVALUATING THE CONTRACTORS QUOTATION

LEARNING ACTIVITY 50

Prepare a checklist to ensure the quotation you have received from the Trades or Suppliers has included all the information you require to accurately compare *'apples to apples'* and that you fully understand what *is included or not included in the quotation.*

	Check ☑

DISCUSSION NOTES

SELF TEST QUESTIONNAIRE

SELF TEST 21

QUESTIONS	REF. PAGE
8. What are the 5 resources a builder needs?	
Answers iii.	**22**
i. iv.	
ii. v.	
9. What are the components of net cost?	
Answer	**22**
10. What are the benefits of developing a good relationship with the subcontractors?	
Answer	**29**
11. What factors should you consider when engaging a subcontractor?	
Answer	**30**
12. What site preliminary items should you consider in your costing/budgeting?	
Answer	**32-33**

QUESTIONS	REF. PAGE
13. What are the 4 basic elements of a builders take off?	
Answers	
	41
14. What information should be considered/provided when requesting a subcontractor to prepare a price?	
Answer	
	45
15. What information should be contained in the quotation received from a subcontractor?	
Answer	
	50-51

DEVELOPING THE PROJECT CASH FLOW

Cash flow projections are an integral part of project planning. Many projects run out of money because they are under-financed. In other words the Owner-builder under estimates the amount of money needed to complete the project.

By doing a cash flow projection, you are trying to establish the cash needs of the project over a period of time. Only by having some idea of when draw downs (your cash injections – money deposited into the projects account) occur can you properly plan the use of those funds over the timeframe of the project.

SECTIONS OF A CASH FLOW

In a typical cash flow there are a number of sections relating to specific groups of cash income and outgoings. These sections are:

Total Income (Your Cash Injections)

Total income of the project over the timeframe the project is expected to run.

Direct Costs

These are costs incurred and include such items as labour, freight, materials, subcontractors etc.

Indirect Costs

These are the costs of the project that support the project. For instance the costs of telephone, rent, electricity, insurance, stationery, general administration costs. They can be substantial for any project and can be often ignored or seriously under estimated by the Owner-builder.

Role of each section of the cash flow

The role of the different sections present a clear and definitive account of the incomes and costs incurred on the project over a period of time. By separating each section in this way, you can gauge where costs are likely to arise.

EXAMPLE LAYOUT OF CASH FLOW

DETAILS	MONTH	MONTH	MONTH	MONTH	MONTH
Sales Other Income Loans					
Total Income					
Direct Costs (Cost Of Goods Sold) Labour Materials Freight Indirect Cost Project Overheads Fees, Insurances Etc					
Total Outgoings					
Bal Carried Fwd					
Total Income					
Sub Total					
Total Outgoings					
Balance					

THE PROJECT CASH FLOW PROJECTION

The same cash flow format can be used to set up a cash flow projection for a particular project. First you must determine when each trade will carry out and complete the works. The Topic Bar Charts/Scheduling in Module 5 – Managing the Work will assist you to determine the timing of each trade activity.

The Cash Flow Chart is the Owner-builders number one weapon in protection from extending past their financial capabilities of the project.

Following is an example of a construction schedule for a three bedroom home. The same method can be used to schedule any project whether it be a private dwelling or a commercial project. The main points to remember when scheduling work:

- Always break tasks down first. Eg: List all tasks that will take place in the course of the construction (not necessarily in order at first). Ensure that you have not left any trades out
- List tasks by each trade and then beside them list materials required for that trade to complete their section of the works. This may include other trades eg: Bricklayer will include possibly the Brickcleaner. You may choose to set the Brickcleaner as a separate item
- Try and keep tasks in time groups of the work that can be completed in each 4 weeks and in order of Construction.

Construction time take 16 weeks

FIRST 4 WEEKS	NEXT 4 WEEKS	NEXT 4 WEEKS	NEXT 4 WEEKS
Council Application	Roof Tile Delivery	Gyprocker	Painting Internal
Preliminary Costs	Roof Tilers	Fixout Timbers	Plumbers Fit-Off
Survey Block	Bricks Delivered	Fixout Carpenter	Electrical Fit-Off
Excavation	Bricklayer Hardware	Fixing Hardware	Shower Screen/s
Slab Pest Control	Bricklayers	Kitchen Installed	Door Hardware
Drainage To Slab	Lock Up Materials	Wet Seal	Carpenter Fix-Off
Concrete Slab	Lock Up Carpenter	Floor/Wall Tiles	P.C Items
Frame and Trusses	Garage Door S and Fix	Floor/Wall Tiler	Internal Clean
Frame Carpenter	Plumbing Rough In	Painting External	Final Pest Control
Windows	Electrical Rough In	Bath, Tub and Vanities	Final Site Clean
Fascia Gutter	Check Survey	1st Site Clean	Sundries
Structural Steel	Brick Cleaner		

Once the works schedule has been completed the builder can proceed to create a cost breakdown for each four weeks. ***Note:*** This cost breakdown does not cover the same time frame as areas of the "construction schedule" as there are variables to be considered, such as, materials that could have been ordered, delivered and used in one month, but will not be utilised until the following month.

The total of all the 4 week periods are added together to arrive at the total construction cost.

Now that you have a clear indication of work that will be completed each month you are able to calculate when you will need 'draw downs' into the account from your own resources or the finance company to supplement the cash flow.

You should try to structure the income of the project so as to cover the costs when they fall due as each stage is completed.

PROJECTED CASH OUTGOINGS – EXAMPLE ONLY

Note: The figures shown below are purely an example and do not reflect the true costs of construction *or* the actual timeframe of the construction.

Job Name: Job Management, 35 Some Street, Builderville

MONTH 1	COST	MONTH 2	COST	MONTH 3	COST	MONTH 4	COST	MONTH 5	COST
Prelimin	1888	Bricklayer	4891	Bricks	3285	F and W Tiles	1905	Door Hwr	270
W.C	442	Carpenter	1665	Plasterer	6829	Painter	6357	Stove	1400
Surveyor	815	Roof Tiler	7280	F and W Tiler	2363	Bath	123	HWS	522
Excavation	2200	Plumber	2000	Carpenter	1341	Vanity	470	Bath Fittings	808
Termite	1036	Windows	2615	Wet Area	603	Kitchen	4439	Fencing	2697
Concretor	10105	Frame and Truss	12426	Lock Up Mat	433	Shower Scn	875	Misc	180
Carpenter	2011	Frame Hwr	540	Garage Doors	810	Carpenter	550	Tapware	518
		Electrical	2000	Extern'l Doors	600	Internal Clean	350	Sundries	800
		Frame Timber	674	Sandstone	415	Extern'l Clean	900	Kitchen Sink	348
		Cavity Units	140	Treated Pine	316	Fixing Timber	1514		
		Fascia/Gutter	1222			Intern'l Doors	449		
						Fixing Hwr	173		
						Plumber	1290		
						Electrical	1313		
						Laundry Tub	205		
						Brick Clean	233		
Contingency	4500	Contingency	4500	Contingency	3500	Contingency	3500	Contingency	2500
Total Outgoings	22997	Total Outgoings	39953	Total Outgoings	20495	Total Outgoings	24646	Total Outgoings	10043
Draw Down 1	25000	Draw Down 2	40000	Draw Down 3	22000	Draw Down 4	25000	Draw Down 5	8000

CONSTRUCTION CASH FLOW

Using the example shown on the previous page, a Construction Cash Flow could look like this.

	MONTH 1	MONTH 2	MONTH 3	MONTH 4	MONTH 5	TOTALS
Surplus C/ Fwd	Nil	2003	2050	3555	3909	Nil
Income Draw	25000	40000	22000	25000	8000	120000
Cash On Hand	25000	42003	24050	28555	11909	120000
Outgoings	22997	39953	20495	24646	10043	118134
Total Expenditure	22997	39953	20495	24646	10043	118134
Surplus + or (-)	**2003**	**2050**	**3555**	**3909**	**1866**	**1866**

This Cash Flow Chart sample only shows one house over a construction period of 16 weeks and an outgoing cycle of 20 weeks.

Note: The use of a contingency figure built into the cash flow. This allows room for unforeseen costs and variances.

There is no allowance for rain or any other hold ups in the calculations and many would say that because of this the cash flow chart will be out of date within a short time. This would be true if the construction schedule was not constantly updated.

Simply moving the income and expenditure line totals forward by the number of weeks the delay has caused, you now have an updated Cash Flow.

The Cash Flow Chart is the window to the project and from it you can obtain the following information.

- The Monthly Costs
- The Monthly Income
- The Cash on Hand.

By reviewing the cash flow chart it can help you assess:

- When cash is required to commence and continue the works.
- Critical periods of the construction path. Eg: When draws are due.

PROJECT CASH FLOW

LEARNING ACTIVITY 51

Using the notes on the previous pages as a guide, and your own project as the base, prepare a cash flow budget from the costing information set out in your Estimate/Take Off/Bill of Quantities.

MNTH 1	COST	MNTH 2	COST	MNTH 3	COST	MNTH 4	COST	MNTH 5	COST
Total Outgoings		Total Outgoings		Total Outgoings		Total Outgoings		Total Outgoings	
Injection 1		Injection 2		Injection 3		Injection 4		Injection 5	

	MONTH 1	MONTH 2	MONTH 3	MONTH 4	MONTH 5	TOTALS
Surplus C/Fwd						
Income Draw						
Cash On Hand						
Outgoings						
Total Expenditure						
Surplus + or (-)						

DISCUSSION NOTES

SELF TEST QUESTIONNAIRE

SELF TEST 22

QUESTIONS	REF. PAGE
16. What are the sections of a Cash Flow Projection?	
Answer	**59-62**
17. What is the advantage of the Cash Flow Projection to the Owner-builder?	
Answer	**63**
18. What are the main points to remember when scheduling the work and how it relates back to the Cash Flow Budget?	
Answer	**63**
19. What information would you expect to gain from a Cash Flow Projection?	
Answer	**60**

JOB COSTING

INTRODUCTION

Reviewing the costs and the cash flow regularly is critical. The information gained from a job costing analysis is ***vital. Do not wait*** until the job is finished to start costing. Cost the job as each section is completed. Compare the variance to your budget (bill of quantities/estimate/take off). Explore the reasons for over runs; is it related to labour, material costs, bad weather or a variation? Could it have been avoided? How can it be improved during the next section of the project?

Keep a running record of the costs associated with each section of the project.

You could set up job costing sheets for each section or trade related to the project.

For example:

Job Costing Sheet

Job Details ..... Trade .....

..... Budget Cost .....

Subcontractor/Suppliers Name .....

Trade Commencement Date .....

MATERIALS			LABOUR			OTHER		
Date	Ref.	Total	W/E	Ref	Total	Ref	Total	Running Balance
Total		$			$		$	$

REF = The invoice number/Supplier Name W/E = Week Ending or Date

Variance (if applicable) .....

.....

.....

Comments .....

.....

.....

The totals of these Job Costing Sheets can be compared to the original Cash Flow Projection.
Refer to the next page.

COMPARISON OF ACTUAL COSTS AGAINST ORIGINAL BUDGET – EXAMPLE

Job Name: Job Management, 35 Some Street, Builderville

MONTH 1	COST	MONTH 2	COST	MONTH 3	COST	MONTH 4	COST	MONTH 5	COST	ACTUAL
Prelimin	1888	Bricklayer	4891	Bricks	3285	F and W Tiles	1905	Door Hwr	270	
W.C	442	Carpenter	1665	Plasterer	6829	Painter	6357	Stove	1400	
Surveyor	815	Roof Tiler	7280	F and W Tiler	2363	Bath	123	HWS	522	
Excavation	2200	Plumber	2000	Carpenter	1341	Vanity	470	Bath Fittings	808	
Termite	1036	Windows	2615	Wet Area	603	Kitchen	4439	Fencing	2697	
Concretor	10105	Frame and Truss	12426	Lock Up Mat	433	Shower Scn	875	Misc	180	
Carpenter	2011	Frame Hwr	540	Garage Doors	810	Carpenter	550	Tapware	518	
		Electrical	2000	Extern'l Doors	600	Internal Clean	350	Sundries	800	
		Frame Timber	674	Sandstone	415	Extern'l Clean	900	Kitchen Sink	348	
		Cavity Units	140	Treated Pine	316	Fixing Timber	1514			
		Fascia/Gutter	1222			Intern'l Doors	449			
						Fixing Hwr	173			
						Plumber	1290			
						Electrical	1313			
						Laundry Tub	205			
						Brick Clean	233			
Contingency	4500	Contingency	4500	Contingency	3500	Contingency	3500	Contingency	2500	
Total Outgoings	22997	Total Outgoings	39953	Total Outgoings	20495	Total Outgoings	24646	Total Outgoings	10043	

Source: © Back to Basics. Business Training Pty Ltd

Enter the actual costs against each budgeted amount. Compare the actual costs against the budgeted figure. Are there savings? Are there overruns? Do you need to control the costs in the next section? Will you require to draw down more money? Have you underestimated your costs?

If there are savings – especially in the Contingency Allowances. Do not just spend it. You may need it further down the track. Overall savings could be utilised in higher quality fittings, landscaping etc.

OR AS A FURTHER EXAMPLE:

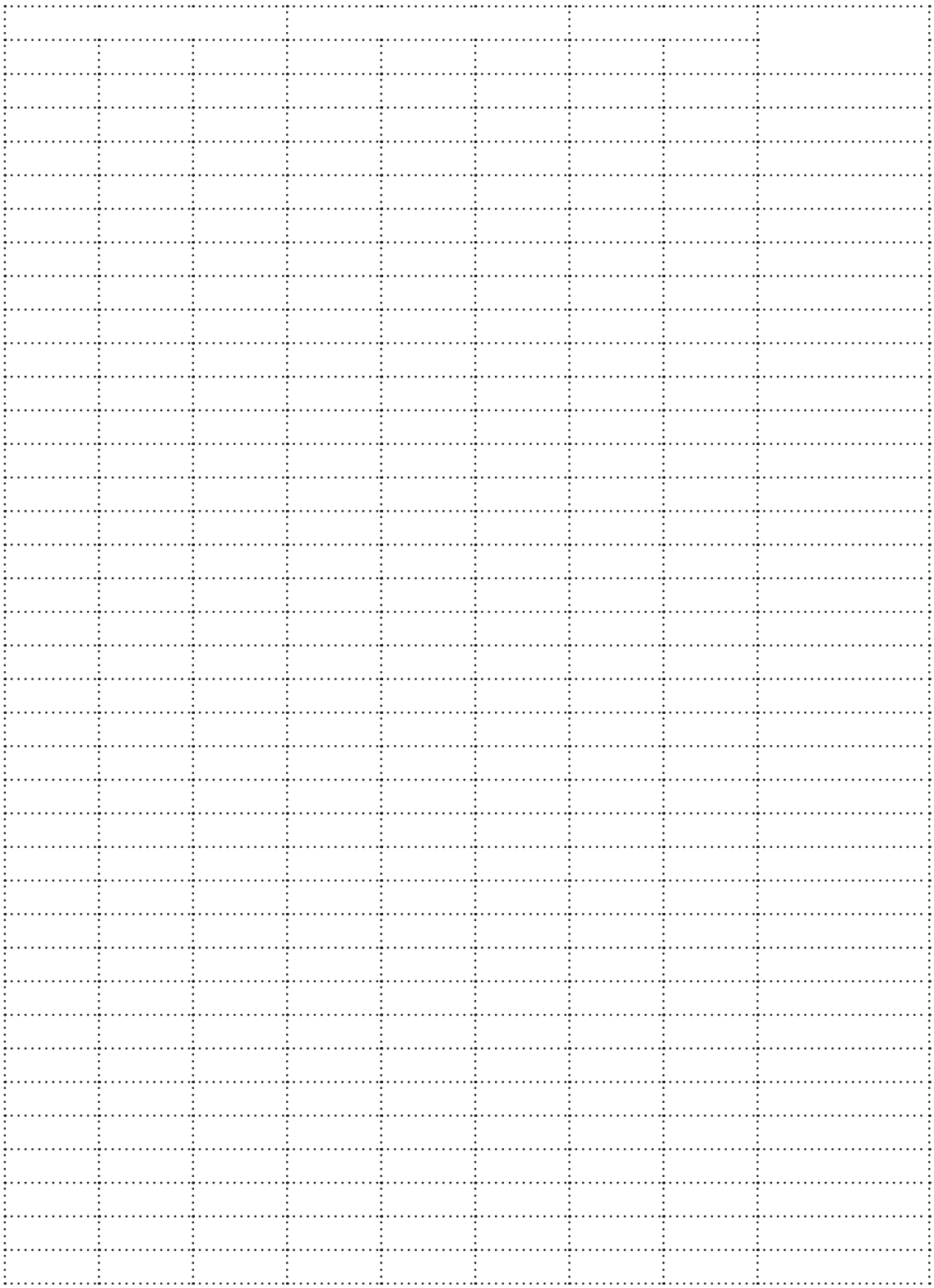
ITEM	ORIGINAL COST ESTIMATE (A)	SUBCONTRACT/ SUPPLIER NAME	ORDER NUMBER	ACTUAL COSTING			TOTAL COST INCURRED (B)	JOB COST ANALYSIS (A-B)
	$			Materials $	Labour $	Plant $	$	Profit/(Loss)
1. Site Survey								
2. Site Excavation								
sundries								
3. Rock Excavation								
4. Concrete								
paths								
floors								
steps								
thresholds piers / footings								
labour								
sundries								
5. Brickwork								
face								

Source: © Back to Basics. Business Training Pty Ltd

JOB COSTING

LEARNING ACTIVITY 52

Using the notes on the previous pages as a guide, and your own project as a base. Set out a job costing sheet that would suit your own project.



DEFINITIONS

Source: Standard Method of Measurement of Building Work 5th Edition (ASMMBW)

Billing

The description of the works being measured into language adopted from the plans and specification to conform to the A.S.M.M.B.W.

Bill of Quantities (B of Q or BOQ)

A list of numbered or coded items describing quantities and materials required to carry out the contract work that is divided into sections corresponding with their usual building trade classification in accordance with the A.S.M.M.B.W.

Bonus

Opposite to above, the builder is rewarded for the early completion of a project.

Brief

Detail in writing of the proposed work, giving general details of site, services available, requirements, function and purpose for which the building is required.

Building Contract

The document or articles of agreement and general conditions binding two or more parties together. Bulking Increase in volume of material due to dislodgement from its natural state.

Clerk Of Works

Normally employed by the Architect to supervise the works for the client.

Client

Person or persons to whom the builder contracts to do the works.

Contingency Sum

Is a monetary sum allowed in the tender/contract for unforeseen expenses and is adjusted in the final account.

Contract Documents

All documents related to the construction as stated in the Articles of Agreement and order of preference:

a. Condition of Contract

b. Specification

c. Drawings, and may include

d. Bill of Quantities.

Contract Variation

Contract variation is the term used to describe additional work, omissions, alterations and substitutions to the work as documented in the contract documents. The term also includes the adjustment of a specified monetary provision where the actual amount expended varies from the specified amount. In commonly used builders ' jargon, a contract variation is called an extra. Of course, this is not technically correct as extra work results in additional cost and omitted work may result in a deduction.

Contractor

Person or persons who, by agreement under a contract, are required to perform certain works.

Costing

Collating relevant information and calculating the actual cost of construction. Information obtained is analysed and directed to provide:

a. Cost control on projects.

b. Data for future estimating.

Ditto

'Ditto' (often abbreviated to 'do') is commonly used to abbreviate descriptions. That is, the word 'Ditto' is the substitute for repetition of a word or portion of the preceding description.

For example:

1.

a. Excavate trench for strip footings not exceeding 1.00 metre total depth.

c. Ditto but exceeding 2.00 metres and not exceeding 3.00 metres total depth.

d. Ditto but exceeding 1.00 metre and not exceeding 2.00 metres total depth.

2.

a. 130 x 300 mm Grated surface inlet pit 400mm deep to invert having 110 mm thick concrete (20 MPa base and sides and 125 mm thick x 760 x 760 mm dished apron with 300 x 300mm standard cast iron grate including all necessary excavation and backfilling, planking and strutting, forming dishing in top, formwork, forming rebates for grate and building in the end of one 100 mm vitrified clay pipe.

b. Ditto, but 600 mm deep to invert.

c. Ditto, but 900 mm deep to invert.

3.

a. 100 mm Pipe laid in trench including excavation not exceeding 1.00 metre and average 0.50 metre deep.

b. 100 mm Ditto and average 0.75 metre deep.

It is recommended that the use of the word ditto be discouraged as incorrect usage in practice is the cause of many claims for extra costs.

Direct Labour

Site labour employed directly by the builder.

Draft Bill

A Bill of Quantities prepared without insertion of rates or monetary amounts.

Estimating

Forecasting the cost of construction.

Extend

The physical computation of all measurements into a total quantity. This quantity is then transferred to the quantity column of the bill. (The estimator then places rates alongside this total quantity arriving at a price for each item in the bill.)

Extra Over (E.O.)

Is a term used in a bill of quantities to indicate an extra cost will be incurred for either labour, material or both over an item that has already been measured. For example, in drainage, the overall length of straight pipe would firstly be given without any deductions for junctions or bends in one item of the bill; and then secondly, an item for extra over for bends or the like would be given.

The estimator would make suitable allowances/deductions for the straight pipe measured in the first item when calculating a rate for the second item.

Extra For

As above.

Head Contractor

The contractor is referred to as the Head Contractor in dealings with subcontractors.

Item

The word 'item' is used as the billing unit, mainly for preliminary or preamble activities that can't be quantified, that involve the builder in a cost.

For Example:

Preliminaries
Any damages to services or property shall be made good immediately by the contractor at his own expense. [Item]

Preamble Concretor
Allow for sampling and testing of concrete as specified. [Item]

Labour Constant

The average estimated time for a unit of work to be completely calculated in terms of one average man under normal conditions and a reasonable quantity of work and expressed in man hours.

Liquidated Damages

Monetary charge imposed upon the builder under the terms of the contract if the works are not completed by the date fixed in the contract, with allowances for extension of time.

Measure

The physical taking off of quantities from plans in accordance with guidelines of the A.S.M.M.B.W., i.e. the working out.

Net Bill

A Bill of Quantities prepared with the insertion of "net rates" alongside each quantity. This bill priced by the builder is for his sole use and is considered a confidential document not available to the client or his representative.

Nett Rate

A rate which includes materials, labour (including on costs), and builders plant. (Overheads and profit are not included.)

Nominated Subcontractor

A subcontractor/s who is/are nominated by the client to perform a separate or specialised section of the work, the cost of which is allowed as a provisional sum in the contract.

Note

The word 'note' is used as the billing unit, where it is necessary to make the builder aware of an activity that has been allowed for elsewhere in the bill, or what has been specified, etc., that does not normally involve a cost to the builder.

For Example:

Concretor
Refer to the specification for detailed descriptions of materials and workmanship. [Note]

Generally
All concrete work is to be carried out in accordance with the A.C.S.E. Concrete (Specification Document 1 - Third Edition and notes on Structural Engineer's drawings. [Note]

Concrete Strength
The concrete strength shall be as specified by the Engineers.[Note]

Roofer and Roof Plumber Flashing to wall has been measured in "Bricklayer". [Note]

On Cost On Labour

Charges payable by the builder directly attributable to his employment of site labour.

Overheads

Charges payable by the builder not directly attributable to his employment of site labour.

Preamble

At the beginning of each trade/section in a Bill of Quantities, there are general clauses that specify the type of material and workmanship . This information helps to eliminate long and repetitive descriptions for each item.

For example, the Brickwork bill will have preamble clauses as to type and quality of bricks, composition and mixing of mortar, etc. so that a reference to cement mortar or lime mortar in the body of the bill will be fully understood without further description.

Preliminaries

Section in a Bill of Quantities which lists general requirements of building and site requirements (normally, the last section estimated).

Priced Bill

A bill of quantities prepared with the insertion of "unit rates" alongside each quantity. This bill is presented to the Architect and becomes a contract document to the extent set out in the Conditions of Contract and may be used for variation adjustments.

Prime Cost Item (P.C.)

A monetary allowance for net trade price of articles (supply only) of a tentative nature at the time of tender. Articles may be completely stated (brand, type, quality, etc.) or left for the selection by owner or architect.

Principal

Is a term used in building contracts in lieu of the word client.

Profit

The amount by which the tendered costs exceeds the actual cost of the project. The object of all business is to obtain a profit in building or in estimating particularly. We can only "anticipate" a profit margin as they will depend on the accuracy of the estimator and the control on the project.

Provisional Sum

A monetary allowance which the tenderer is directed to include in his tender to provide for the cost of work, usually labour and materials, i.e. special fitments, air conditioning, etc.

Provisional Quantities

A monetary allowance for certain components of the works when the exact quantities are unknown at the time of tendering and adjusted according to agreed rates on performance of the work.

Retention Monies

A monetary sum retained by the client from progress payment to the builder for the client security.

Schedule of Rates

A list of unit rates used by the Architect to adjust builder's claims for variations. Can also be used in cases where no final drawings are available at the time of tender. The client would be given a schedule of rates on which final costs would be verified on completion of the works.

Subcontract

Portion of the main contract performed by others (subcontractors) and can be for:

a. Supply material only.

b. Supply and fix material.

c. Supply labour only.

The Head Contractor retains the full responsibility for completion of all work.

Tender

The sum of money, time and other conditions required by the tenderers to complete the specified building work.

Tender Figure

The sum of money forming part of the tender.

Unit Rate

A rate which is the combination of a Net Rate plus the builder's allowance for overheads and profit.

Waste

The difference between the quantity required to be supplied and the net measured quantity, i.e. cutting waste, spillage, shrinkage, breakage, culling or selection of material.

DISCUSSION NOTES

FURTHER REFERENCE

Websites

www.fairtrading.nsw.gov.au	NSW Fair Trading
www.lawfoundation.net au	Law Foundation (Access to legislation and Regulations)
www.natspec.com.au	NATSPEC

Legislation and Regulations

- Australian Standards
- Other
- Yellow Pages Australian Institute of Quantity Surveyors.

Recommended Reading

- *The Australian House Building Manual* – Allan Staines
- Australian Institute of Building Code of Practice for Building Work
- *Basic Building Measurement* – Paul Marsden
- Australian Standard Method of Building Works.

Your List