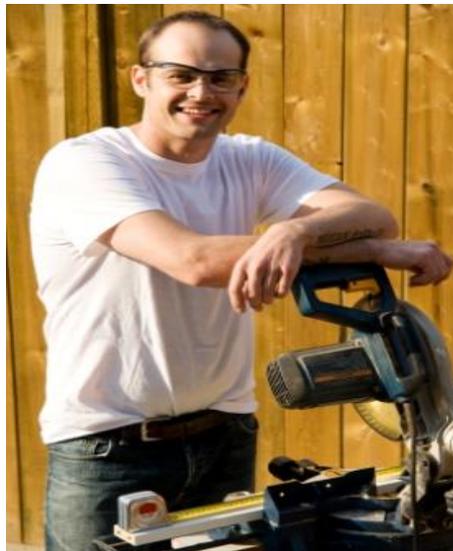




OWNER BUILDER COURSE STUDY GUIDE AUSTRALIAN CAPITAL TERRITORY



This is the third edition of the Abacus Training Owner Builder Study Guide – Australian Capital Territory.

The guide is basically divided into two separate but connected sections.

- 1) Legal Requirements and the Application Process**
- 2) Managing your Owner Builder Project**

Section one details the legal responsibilities of owner building in the ACT and steps you through meeting your obligations in the Owner Builder Process.

Section two provides generic information on project management and contract administration as it is applicable to Owner Builders constructing a typical domestic dwelling.

INTRODUCTION TO THE OWNER-BUILDER COURSE STUDY GUIDE – AUSTRALIAN CAPITAL TERRITORY

Welcome to the third edition of the **Abacus Training Owner Builder Course Study Guide – Australian Capital Territory**.

This course is provided to assist prospective owner builders to:

- 1) successfully make application for a **Construction Practitioners Licence – Owner Builder – BCA Class 1 and 2 as required under the Construction Occupations (Licencing) Act 2004**, and
- 2) to manage their project from the initial planning stages through to practical completion.

It has been produced as a response to many questions, enquiries and requests by our clients, and addresses areas of concern that owner builders may face in the day to day running of their projects.

This course is presented as educational and guidance material, and when used together with our associated owner builder systems, becomes a general management tool and control programme suitable for use in a typical owner builder project.

Statutes, Laws and Regulations across the various Australian states and territories, vary in the requirements and qualifications needed to obtain an owner builder's permit or licence, and these requirements need to be addressed pertinent to relevant local authority guidelines and rules.

This manual specifically addresses the requirements for Owner Builders who are building in the Australian Capital Territory.

The system reinforces and underpins the knowledge obtained in the course and provides a guide to keep your works schedule on track and on budget.

All forms, letters and schedules provided in the associated Project Management and Safety Management Systems are accompanied by a written description of their use and an outline of their importance in the management of your project.

Each explanation is written and presented in plain language and, where we have considered it necessary, examples of worked spreadsheets, forms and letters are provided.

We know this system will help you maintain control over your project and increase the satisfaction, enjoyment and financial advantages that are possible when undertaking the role of an owner builder.

We wish you all the very best in your endeavours.

About the Author

The author and developer of this course is Rick Heaton, the Chief Executive Officer of Abacus Training.

Rick brings over 12 years of experience in the design, production and presentation of quality education material to the building industry.

With industry experience in excess of 33 years, Rick has drawn on his knowledge and practical experience to ensure this system is relevant to the owner builder in the function of managing the construction of a single domestic dwelling.

Rick has had substantial involvement in various construction projects ranging from domestic dwellings to multi storey commercial developments, with specialist construction including hospitals and schools.

At industry level, Rick holds licenses in the disciplines of general and commercial building and is a licensed plumber, drainer and gasfitter and holds formal instructional, vocational training and assessment qualifications.

Rick recognises that the requirements of Owner Building in individual states and territories vary and that each project is different however, the basic principles of project management remain unchanged.

The next section explains the specific requirements of Owner Building in the Australian Capital Territory.

Text References

The ACT Government has through the ACT Planning and Land Authority has developed "***A Guide to Building and Renovating Your Home***" this well presented publication provides general information on building and renovating and includes a section dedicated to Owner Builders.

This document in our opinion is essential reading for anyone planning to build or renovate, particularly those considering owner building.

The guide can be downloaded from:

<http://www.actpla.act.gov.au>

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Section One Legal Responsibilities and the Application Process

1.1 Responsibilities of an Owner Builder

When you first decide to undertake a project as an owner builder, you will need to gather a considerable amount of information.

In real terms your responsibility as an owner-builder can be broken down into four distinct areas.

- Your responsibility to yourself
- Your responsibility
- Your responsibility to the workers on your site
- Your responsibility to the community

These responsibilities and your obligations in respect to taxation, insurances site safety etc are discussed throughout this text.

At all times you must refer as necessary to websites and information sheets as provided by your relevant authorities and always, when in doubt consult with an industry professional such as your *appointed building certifier*.

Let's look at each area of responsibility in more detail.

1.1.1 Your responsibility to yourself

This may appear obvious, but it is worth mentioning anyway:

- You have a responsibility to yourself and your family or partners to ensure that your hard earned dollars are used in the most effective way possible; and
- It is necessary to ensure your lifestyle, both personal and professional are not adversely affected through the performance of your functions as an Owner Builder.

Remember like all things worthwhile, successfully managing the construction or renovation of a domestic dwelling will take considerable time and effort.

Having said this, if you remain organised and focused, commit the time and effort, the rewards can be great and the satisfaction immeasurable.

As an owner builder, you will take on all of the tasks that would be expected and required of a licensed building practitioner and carry with them the same responsibilities both in a legal and moral sense.

Common roles will include:

- ✓ Decision Making
- ✓ Administration (both onsite and offsite)
- ✓ Public Relations
- ✓ Labouring
- ✓ Communication

Undertaking these responsibilities can place considerable stress on you as a person and could potentially be adverse to both you and your family.

Whilst the rewards of owner building can be great, you need to consider the impact that the additionally responsibilities and demands on your time will place on you and you loved ones.

Ask yourself, “**Am I ready to be an Owner Builder?**”

1.1.2 Your Responsibility to comply with relevant laws, statutes, act and regulations

As an owner builder you will be considered as the principal contractor and the responsible person in respect to all activities on the site and the compliance of all proposed and finished works.

Have you considered the following legal requirements that may affect you proposed owner builder works?

- Building Act
- Building Regulations
- Building Code of Australia
- Australian Standards
- Codes of Practice
- Occupational Health and Safety Act
- Environment Act
- Heritage Listed Buildings
- Tree Protection Laws
- Taxation including GST
- Long Service Leave
- Building Industry Training Levy

We will cover many of these areas in detail later in this text but the earlier you start to consider all of the responsibilities and requirements that may affect your proposed works, the better equipped you will be to successfully complete your project on time, within budget and in compliance with relevant laws and building codes.

1.1.3 Your Responsibility to the Workers on Your Site

As an owner builder, you are the Principal, Primary Contractor or responsible builder.

Along with these lofty titles comes some reasonably onerous obligations.

You are solely and totally responsible for providing and ensuring a safe and healthy working environment.

You must ensure the requirements of relevant Health and Safety Acts and Regulations are complied with.

Under the Occupational Health and Safety Act 1989 (the OHS Act) employers must provide and maintain a working environment that is safe and without risks to health.

This includes requirements to:

- Provide and maintain plant that is safe to use
- Provide safe systems of work for using plant and substances
- Provide adequate information on hazards, as well as instruction, training and supervision to help you do your work safely
- Provide personal protective equipment appropriate for the job
- Provide adequate welfare facilities such as amenities and first aid

Later in the course, we consider in depth, the requirements and responsibilities of the owner builder in respect to site safety.

The two diagrams which follow, will assist you in planning your project and recognising areas of responsibility you will need to be aware of throughout the project.

1.1.4 Your responsibility to the community

Meeting your owner builder obligations in regards the wider community are generally satisfied through compliance with the various laws, statutes, codes and regulations that are applicable to development and building works in the Australian Capital Territory.

Your responsibility to the community includes preserving the existing environment which may require you to consider the general look, feel and theme of the surrounding area, buildings and facilities.

Your community responsibilities require you to protect people and existing structures from damage or injury caused by the works carried out on your site which are under your control.

Erosion control, air and noise pollution require consideration and the timely payment of fees, contract agreements, levies etc all add to your community responsibilities.

As previously discussed, most of these will be taken care of through careful planning. Many are common sense, but some may require you to discuss options, alternatives or solutions with either:

- Your appointed Building Certifier
- Your Building Designer, or
- The relevant Governing Authority

The ACT Planning and Land Authority is a good place to start and they can be contacted on:

02 6207 1923 (General Inquiries)

www.actpla.act.gov.au

132281 (Environment ACT Help Line)

02 6260 6165 (Home Energy Advice Team)

02 6207 1923 (Residential Development Unit – General Enquiries)

- Figure: 1.4.3(1) Planning Checklist and Typical Event/Task Sequence

Figure 1.1.1

Task No.	Task Particulars
1	Complete Owner Builders course
2	Select land or residence
3	Carry out searches, inquiries
4	Purchase property
5	Payment for conveyancing
6	Design and select a house plan
7	Obtain site survey and contour plan
8	Obtain soil test and foundation report
9	Check your budget costs to build
10	Provide design brief and final sketch to designer
11	Obtain preliminary design drawings
12	Obtain waste management soil test if required
13	Submit soil test and house designs to engineer
14	Collect final house designs and engineers drawings
15	Obtain Development Approval through ACTPLA (if required)
16	Obtain Building Approval from your appointed Building Certifier
17	Obtain owner builder licence (apply through ACTPLA)
18	Apply to Building Certifier for Commencement Notice
19	Prepare full budget for preliminaries and building costs
20	Prepare copies of plans for tendering from trades and suppliers
21	Send plans and details of specifics required to contractors Note: Obtain 3 estimates for each trade and supplier
22	Prepare a list of P.C items (Prime cost)
23	Prepare initial building schedule (Take out public holidays)
24	Obtain finance approval and submit all documents

25	Obtain all necessary insurances; WorkCover, public liability, construction insurance, personal sickness and accident and structural warranty.
26	Select successful contractors
27	Check contractors license bona fides
28	Sign contracts with trade contractors
29	Site record and file trade contractors insurance details <ul style="list-style-type: none"> a. WorkCover b. Contractors all risk (Public risk and liability) c. Personal sickness and accident d. If the contracts value is over \$1,200, must take out home warranty insurance
30	Complete your General Safety Induction Course
31	Prepare site safety plan
32	Obtain work method statements from trade contractors
33	Confirm account details with suppliers
34	Erect owner builder site sign if required
35	Erect site safety signs as required
36	Confirm starting dates with trade contractors (Amend building schedule if required)
37	Erect safety fencing where required
38	Erect erosion control systems as required
39	Make arrangements and pay for any temporary services
40	Check final budget for project
41	Obtain and finalise to date a site diary (1 day per page)
42	Finalise an effective filing system
43	Send commencement notification to financier & insurer
44	Set out site, building. Use a surveyor

Take the time to familiarise yourself with them and refer back to them as often as necessary throughout the project to reinforce your understanding of specific roles and responsibilities.

The information provided to this point has given chance to review general responsibilities associated with being an owner builder, we will now consider in detail at the specific responsibilities of an owner-builder as detailed on the ACTPLA website.

1.2 Owner Builders' Responsibilities

Owner Builders have several professional responsibilities for construction and overseeing building work.

1.2.1 Licensing

You must be [licensed](#) to carry out owner-builder work.

1.2.2 Insurance

You do not need warranty insurance. However, as a supervisor of building work, an owner-builder needs to be aware of insurance requirements, in particular, workers' compensation for any workers that are involved in the project. Owner-builders can check with their insurance provider for advice on insurance needs, including public liability and increasing the house insurance to cover any additions.

1.2.3 Standards and legislation

The standards and legislation that apply to owner-builders' work are:

[Building Act 2004](#);

[Building \(general\) regulations 2008](#);

[Environment ACT requirements](#) about noise and water pollution.

[Construction Occupations \(Licensing\) Act 2004](#);

[Construction Occupations \(Licensing\) Regulations 2004](#);

[ACT WorkCover construction rules](#);

Building Code of Australia, all sections (volume two Housing Provisions); and any relevant Australian Standards where the work relates to it, such as AS 2870 Residential slabs and footings-Construction-1996 and AS 3740 Waterproofing of wet areas within residential buildings-2004.

As an owner-builder, you take on the same responsibilities as a licensed builder to:

- supervise building work;
- ensure the building work complies with the *Building Act 2004*;
- ensure the work is done in a proper and skilful way; and
- ensure the work is done in accordance with approved plans.
- You are responsible for up to 10 years for any building work you do. Within that time you may be issued with a rectification order to fix non-compliant work, even if the property has been sold.

1.2.4 Notifications, Inspections and Approvals

The steps you need to take include:

- completing an owner-builder course to be eligible for an owner-builder licence;
- obtaining a commencement notice from your certifier before work starts;
- booking inspections with your certifier at the appropriate stages; and
- complying with directions given by a certifier after an unsuccessful inspection.

You should also understand the certifiers responsibilities when you are an owner-builder.

1.2.5 Safety

You are responsible for site management and for ensuring safety precautions are in place. You need to be aware of Workcover requirements on workplace safety.

1.2.6 Regulation

You may be subject to disciplinary actions for legislation breaches. Discipline may be cancellation of the owner-builder licence, suspension or a fine. As well, demerit points can be allocated to an owner-builder. You can be prosecuted for offences under the *Building Act 2004* and the *Construction Occupations (Licensing) Act 2004*.

1.3 Owner Builders' Licensing

You need an owner-builder licence if you build yourself, rather than employing a licensed builder.

1.3.1 Before you apply

Before you apply, you should determine whether you need development approval or if your project has exemptions from development and/or building approval. You should understand your owner-builder responsibilities, which include having building approval issued for the work before the owner-builder licence can be issued. Once you have an owner-builder licence, you need to get a commencement notice to begin building.

1.3.2 What you can build

You can build or renovate your residence or build ancillary structures around the residence, such as decks, pergolas or carports provided the building work is on your main home or ancillary to it. You may not be able to install a swimming pool, demolish a building, handle asbestos (other than stable asbestos) or perform work on a commercial building.

1.3.3 Eligibility

Only an individual can apply for an owner-builder licence. You must own the land to be developed. Where there is more than one owner, all owners must consent to the application. It is recommended that the owner with the most appropriate skills to carry out the proposed work should be put forward as the primary applicant.

There is also a restriction on the number of owner-builder licences that can be issued.

To be eligible for an owner-builder licence, you must not have been granted an owner-builder licence in relation to other land in the previous five years.

There is no restriction on the number of owner-builder licences for work on the same site.

Eligibility to be owner-builder

An individual is eligible to be an owner-builder only if—

(a) the individual owns the land where the building work allowed under the owner-builders licence is proposed to be undertaken;
and

(b) the building work has building approval under the *Building Act 2004*; and

(c) the individual has not been granted an owner-builders licence in relation to other land in the previous 5 years before applying for the owner-builders licence.

1.3.4 Owner Builder Qualifications

Mandatory qualifications apply, including the need to demonstrate sufficient experience to do the building work and satisfactory completion of an owner-builder course to demonstrate you have sufficient knowledge of legislative and technical requirements.

The experience and qualifications required are relative to the complexity of building work:

- if you apply for an owner-builder licence to build or renovate a Building Code of Australia class 1 building such as a new residence or an addition/alteration to a residence, you will need to have successfully completed an owner-builder course or examination within the last 5 years provided the course or examination was undertaken after 1 September 2004, or you are the holder of a builder licence (class A, B, C or interstate equivalent); or
- if you apply to build a Building Code of Australia class 10 structure such as decks, pergolas, carports, garages and retaining walls, you will need to provide evidence of your skills and experience to demonstrate that you are able to satisfactorily carry out the building work or alternatively you have successfully completed an owner-builder course or examination within the last 5 years provided the course or examination was undertaken after 1 September 2004, or you are the holder of a builder licence (class A, B, C or interstate equivalent)

1.3.5 Appendices

Reference Documents

[Building Act 2004;](#)

[Building \(General\) Regulation 2008;](#)

[Construction Occupations \(Licensing\) Act 2004;](#)

[Construction Occupations \(Licensing\) Regulations 2004;](#)

[ACT Building and Construction Industry Safety Handbook 2004;](#)

Building Code of Australia, all sections (volume two Housing Provisions); and any relevant Australian Standards where the work relates to it, such as *AS 2870 Residential slabs and footings-Construction-1996* and *AS 3740 Waterproofing of wet areas within residential buildings-2004*.

The Building Code of Australia can be obtained by phoning CanPrint on (02) 6293 8300. Australian Standards can be obtained by phoning Standards Australia on (02) 1300 654 646.

Applications

Complete the form that applies to you:

[CL5 - Application for owner builders licence for BCA Class 1 and 2 buildings](#); or

[CL6 - Application for owner builders licence for BCA Class 10 buildings/structures](#).

1.4 Rectification Work

1.4.1 Definition of Rectification Work

- work to ensure compliance with the conditions of a development approval; or
- work required to remedy the effects of a controlled activity in cases where a controlled activity order had been issued requiring the remedial work but this order was not complied with work to ensure compliance with a development approval or the conduct of an activity under a controlled activity order that was not carried out within the period stated under the order.

1.4.2 Direction to carry out rectification work

The Authority can direct a lessee or occupier or anyone by whom or on whose behalf a controlled activity was or is being conducted to carry out rectification work. It is an offence to contravene a direction to carry out rectification work.

1.4.3 Authorised Persons

The Authority may authorise a person to enter a place, subject to a notice, to carry out the work required by the notice if the work has not been completed by the time specified in the notice.

However, an authorised person may only enter a premise to carry out rectification work with the consent of the occupier and authorisation cannot be given until any appeal period in relation to the notice expires or, if an application for review is made to the Administrative Appeals Tribunal, until the decision is upheld by the Administrative Appeals Tribunal or the application is withdrawn.

Work carried out by an authorised person must be in accordance with the directions of an inspector.

Anything removed from the premise that is not required to be returned may be disposed of.

1.4.4 Recovery of Costs

The Territory may recover the reasonable cost of any rectification work carried out by an authorised person. The Authority can determine circumstances when a lessee may defer payment of the cost of rectification work (wholly or partly). A lessee can apply for deferral of part or all costs of rectification work or the Authority can declare this of its own initiative.

The Authority must lodge a declaration with the Registrar-General for registration and give a copy of the declaration to the lessee and anyone else with an interest in the leasehold. The Territory is taken to be a person claiming an interest in the leasehold and the registration creates a charge over the leasehold. This type of registered charge does not give a power of sale

Once the cost has been fully paid, the charge is discharged upon registration of revoking a deferral declaration. The lessees of charged leasehold are liable separately and together for the payment of the charge. A registered charge does not give a power of sale over the leasehold to which it relates.

1.5 Building Approval

Building approval is required for most developments to ensure it complies with building laws, including the Building Code of Australia. Building approval is usually obtained after we have given development approval.

However, there are some exemptions to development approval and/or building approval.

Building approval must be sought before construction begins.

1.5.1 Get Building Approval

To get building approval:

appoint a licensed building surveyor as your certifier;
apply for building approval and pay the relevant fees (your certifier will inform you);
and

The forms to complete are in the [building approval information pack](#).

You need to give the certifier properly prepared plans that show the work that will be done.

The fees paid to the ACT Government for work requiring building approval are:

- a building levy, required for all plans that your certifier certifies;
- a training levy, required if the work has a value greater than \$10,000; and
- a WorkCover workplace safety fee, required for all commercial construction and sometimes for residential construction.

Your certifier will calculate these using the Building Cost Guide and the Fees and charges booklet. You can pay these fees at the Customer Service Centres in Dickson or Mitchell, by calling Canberra Connect on 13 33 81.

Before work begins, the person licensed to build needs to apply to your certifier for a commencement notice and you or your appointed agent need to sign this application.

The work can start once your certifier has issued the commencement notice, provided work has not been prohibited by law.

Most builders will subcontract electricians, plumbers, carpenters, bricklayers and other trades during construction. The builder is required to ensure that any persons engaged are appropriately skilled and, if required, are licensed.

1.5.2 Get Plumbing Approval

During construction, you may have plumbing work completed. For some plumbing work, you will need to employ a licensed plumbing plan certifier to approve the plumbing plan.

1.5.3 Conditions of Building

You and the professionals you employ need to be mindful of:

- any conditions that we set in the notice of decision we sent you advising of your development approval; and
- any lease conditions; and
- the requirements of the building approval (if any).

These conditions govern everything you can build or do on your land. An example condition is that for certain residential leases in new suburbs, construction must start within 12 months of the date of development approval and must be completed within 24 months.

1.5.4 During Construction

A number of notifications and inspections may need to be made during construction. This helps to ensure the work is carried out to the required standards before you can apply to us be issued a certificate that allows you to have legal occupancy or use of the building.

1.6 *Certifiers' Employment*

Home-owners or lessees are responsible for appointing a certifier. They can give this responsibility to another person such as their builder. However, to ensure that their interests are protected, it is best to engage a certifier themselves.

1.6.1 Certifying Work

A building certifier, also known as a building surveyor, is needed to ensure the building plans and work is completed in accordance with the building legislation and the Building Code of Australia.

The Code covers issues such as structural safety, and health and fire protection, but does not address quality of the work or finish.

A plumbing plan certifier is needed to ensure the plumbing and drainage plans comply with the standards required before the work is completed. This applies to work with a value of over \$1000.

1.6.2 Check Licensing

Certifiers must be licensed. There are three different classes of licence:

- a principal building surveyor may certify any building work;
- a general building surveyor may certify a building up to three storeys and with a floor area up to 2000 square metres; and
- a plumbing plan certifier may certify plumbing or drainage plans for commercial work.

You can find a certifier who has the relevant qualifications and experience and can check their class of licence from our list of licensed certifiers.

1.6.3 Check Independence

A certifier must be independent.

They must not have any direct or indirect financial, legal or equitable interest in the work or have any relationship whether personal, professional, commercial or financial, with you or your builder.

A certifier must also not be involved in the design or construction of the work being done.

1.6.4 Check Scope of Services

Some certifiers may provide additional services, such as quality control, for an additional fee.

However, you can engage your own representative, such as an architect or building consultant, to inspect and monitor the quality of the work to ensure it is being done in accordance with the contract.

1.6.5 Get Quotes

Before appointing your certifier it is advisable to obtain more than one quote for the certification work. You should also agree to the method and timing of payment.

1.7 Building Certification

1.7.1 Inspection Stages

During construction, your building certifier has inspections to make at the completion of each of the following stages:

- completion of excavation, placement of formwork and placement of steel reinforcing for the footings before any concrete for the footings is poured;
- completion of the structural framework and, for a class 1 or class 10 building (for example, a house and garage) before the placement of any internal lining;
- for a class 1 or 10 building (for example, a house and garage) completion of placement of formwork, and placement of steel reinforcing, for any reinforced concrete member before any concrete for the member is poured;

- for a building other than a class 1 or class 10 building completion of any reinforced concrete member before any concrete for the member is poured, stated by the building certifier in the relevant building approval; and
- completion of the building work approved in the relevant building approval.

An extra inspection will be made during construction for two-storey homes before the second-storey slab is poured.

Your builder must inform the certifier when the work requires inspection.

1.7.2 Completion of Work

On satisfactory completion of the building work, your certifier will issue a Certificate of Completion.

You will then need to apply to us for a *Certificate of Occupancy and Use* before you can occupy or use the building.

1.8 Certifiers' Responsibilities

Building certifiers and plumbing plan certifiers have several responsibilities for ensuring work is professional.

1.8.1 Licensing

You must be licensed as:

- a principal building surveyor to certify any building work;
- a general building surveyor to certify a building up to three storeys and with a floor area up to 2000 square metres; or
- a plumbing plan certifier to certify plumbing or drainage plans for commercial work.

1.8.2 Advertising

When a licensed corporation, partnership or individual advertises their construction service, they need to include in the advertisement their name as recorded on their licence, their licence number and for a corporation its ABN or ACN number.

1.8.3 Insurance

Your Building Certifier needs to carry adequate and appropriate insurance.

Adequate insurance is:

- for building certifiers, professional indemnity insurance that includes a minimum limit of indemnity of \$1 million for any one claim, a minimum limit of indemnity of \$1 million for the total of all claims against the insured made in the period of cover and a minimum limit of indemnity for the costs and expenses of defending or settling a claim of 20 per cent of the limit of indemnity for the claim;
- for plumbing plan certifiers, professional indemnity insurance that includes a minimum limit of liability of \$1 million for each period of insurance.

You need to show evidence of the insurance you hold to a client before providing a service.

This includes advising the person that you do not have insurance if that is the case.

You may ask the client to sign an acknowledgment that they have been told about your insurance arrangements. The acknowledgment must state the time and date it was given.

If the client signs the acknowledgement, you must immediately give them a copy.

1.8.4 Standards and Legislation

Building certifiers are responsible for making sure the building work complies with the Building Code of Australia and the approved plan.

This includes making sure that appropriate termite barriers and protection are installed.

Before plumbing approval is given, plumbing certifiers must ensure the proposed work and plan complies with plumbing and drainage plan standards.

Documentation of work certified needs to be kept for 12 months after the job is completed.

1.8.5 Notifications, inspections and approvals

Building Certifiers need to:

- issue building approval;
- issue the builder with a commencement notice;
- ensure housing indemnity insurance or a fidelity certificate is in place before work begins (not applicable to owner builders);
- give copies of the plans to the Construction Occupations Registrar for record keeping;
- conduct inspections during construction; and
- issue a certificate of completion once the building work has been satisfactorily completed.

Plumbing plan certifiers must notify us that they have been appointed no later than the time they give plan approval. They also must notify us if their appointment is cancelled.

1.8.6 Safety

A building certifier is not necessarily responsible for checking all aspects of the quality of the work undertaken by the builder. Some certifiers may provide additional services such as quality control for an additional fee.

However, some homeowners engage the assistance of a representative, such as an architect or building consultant, to inspect and monitor the quality of the work to ensure that it is being done in accordance with the contract.

1.9 Construction Site Management

Builders or owner-builders have responsibility for maintaining a safe site while construction is occurring.

1.9.1 Safety

General safety required for construction can be found on the ACT WorkCover web site and in the [ACT Building and Construction Industry Safety Handbook](#).

1.9.2 Noise

Maintenance, repairs and building work must only occur within certain hours and on certain days and must not exceed certain noise levels.

For more information read about noise in residential areas from the Department of Territory and Municipal Services.

1.9.3 Water, Soil and Pollution

Builders need to ensure the soil on the building site does not enter the stormwater system and pollute waterways.

For more information read about stormwater pollution in residential areas from the Department of the Environment, Climate Change, Energy and Water.

1.9.4 Trees

Significant trees as identified in the building plans must be protected. For more information read about tree protection legislation from the Department of Territory and Municipal Services

1.9.5 Building Work and Lease Boundaries

Demolition and building work must only occur on the property for which it has been approved.

If you are in doubt about work encroaching on your property or other aspects of building work on neighbouring properties, contact the ACT Planning and Land Authority.

1.9.6 Nature Strips and Footpaths

The Department of Territory and Municipal Services must give written approval to store or place items on nature strips and to place items across nature strips or footpaths. Street trees must not be pruned or removed.

Vehicles and trailers must not be parked on nature strips. Foliage must not obstruct pedestrian access to footpaths or the nature strip 1.2m from the back of the kerb.

For more information read about nature strips from the Department of Territory and Municipal Services.

1.9.7 Rubbish

Rubbish bins must be provided on site and used. If they are not, a rectification order may be issued. Inquiries about rotting garbage, vermin and stagnant water can be made to the Health Protection Service.

1.9.8 Asbestos

Houses, workplaces and public buildings built before 1988 are likely to have some materials that contain asbestos.

Demolition, construction, repair and other building work can damage and disturb asbestos, which poses a health risk.

Information on people's responsibilities and ways to manage these materials are outlined on the ACT Government's asbestos web site.

1.10 *Discipline of People in Construction Occupations*

From 2 February 2009 new arrangements take effect that will transfer the role of disciplining people in construction occupations from the Construction Occupations Registrar under the Construction Occupations (Licensing) Act 2004 (COLA) to the ACT Civil and Administrative Tribunal (ACAT) under the ACT Civil and Administrative Tribunal Act 2008.

The Construction Occupations Registrar will still deal with minor disciplinary matters and will continue to investigate complaints against license holders but will refer more serious matters to ACAT.

1.10.1 Grounds for Occupational Discipline Include:

- contravention of COLA or an operational Act
- giving false or misleading information in relation to a construction service
- the licensee or a director, partner or nominee of the licensee, being found guilty of an offence involving fraud, dishonesty or violence that is punishable by imprisonment for at least one year
- if the licensee is an individual, the licensee has compounded with creditors or made an assignment of remuneration for their benefit
- if the licensee is a corporation the licensee enters into a scheme of arrangement, or a receiver, manager, receiver and manager or administrator is appointed over the licensee or any of its assets
- a licensee that is a corporation or partnership operating without a nominee, or

- the licensee's licence has been automatically suspended and the cause of the suspension still exists.

For more information on the ACAT procedures refer to their website:

www.acat.act.gov.au.

1.10.2 Occupational Discipline Orders

The ACAT will be able to make one or more of the following orders for occupational discipline against a licensee:

- reprimand the person
- require the person to give a written undertaking
- require the person to complete a stated course of training to the satisfaction of the regulatory body or another stated person
- give the person a direction.
- cancel or suspend the person's licence or registration
- disqualify the person from applying for a licence, or registration, of a stated kind for a stated period or until a stated thing happens

1.10.3 Infringement notice offences

An infringement notice may be issued for:

- working while not holding a licence required for that work;
- pretending to be licensed;
- advertising to provide construction services, but the advertisement contravenes relevant law; and
- allowing an unlicensed or inappropriately licensed person to do work that requires a licence.

An entity issued with an infringement notice can choose to pay the fine amount stated in the notice or challenge the notice in the ACT Magistrates Court.

1.10.4 License Demerit Points

The grounds for demerit points for occupational discipline are the same as the grounds for occupational discipline excluding those for which an infringement notice may be issued.

If the grounds for demerit points exist, the Registrar records in a demerit points register the number of demerit points the licensee has incurred for the relevant

construction occupation. A demerit point is incurred on the day when the Registrar first becomes aware of the disciplinary incident.

A demerit point exists for three years, which does not include time when a person was unlicensed.

If a licensee incurs demerit points while unlicensed and then becomes licensed within three years, the remainder of the three years attaches to the new licence. The demerit points that were taken into account in a licence disqualification or suspension or other disciplinary action are deleted from the register when the period of the action begins.

Licensees are advised if a demerit point has been recorded and in the previous three years the licensee has had at least 10 demerit points. The only circumstance in which the registrar is not required to write to the licensee is when a notice has been sent within the previous three months.

If a licensee incurs 15 or more demerit points in a construction occupation within the previous three years, a notice of licence suspension, disqualification or other disciplinary action will be issued.

1.10.5 Disqualifications

Disqualified licensees are not entitled to apply for or be issued with a licence for the entire time of the disqualification. If a licensee applies for a new or renewed licence, and has within the previous three years incurred 15 or more demerit points within the construction occupation in which they are applying, the Registrar may refuse to issue the licence.

2.0 Managing Your Owner Builder Project

These next few paragraphs are possibly the most important content in the course.

If I had to identify the most common reason that people become owner builders and take on the challenges of building their own home, obviously it would be a desire to save a considerable amount of money through taking on those functions which would normally be provided by a contract builder.

Yes, there is a potential to save a lot of money by undertaking your project as a owner builder however you must follow these rules:

- Plan and Organise
- Communicate, and
- Remain Disciplined

How do you achieve this?

Plan and Organise

The planning and organisation of a project is the key to a successful outcome where your project is completed on time and on budget.

You need to read and understand the contents of this course, review areas as necessary whilst you continue through the various stages of your project, and use the planning, management and administration tools we have included free with this course.

Your initial planning, estimating of costs and time schedules need to map out clearly what you want to achieve, identify how you are going to achieve it, when you are going to achieve it and at what cost.

Be realistic, allow for contingencies such as poor weather, difficulty in sourcing materials and trades and always have a backup plan or alternative.

Look at and consider what you have available to you in terms of resources.

How much time can you realistically devote to your project. (this will vary through the various stages of construction)

What human resources are available to you in your immediate family or close friends. (often problems are best discovered or solved through brain storming sessions that bring a new set of eyes and a fresh point of view)

Communicate

This may seem obvious and we did identify this important owner builder role in section one, but what do we mean by communicate?

Communication allow the flow of information from one person to another, effective communication is achieved when the message sent is received and understood correctly by another party.

Sounds simple enough but jargon, industry terminology and even local slang impact on the meaning of the message, take the time to learn how to communicate and give meaningful instruction to your suppliers and contracted tradespersons.

You need to develop and honest and open communication with everyone involved in your project to give you the best chance of maintaining a trouble free site.

Things do of course go wrong and when they do, good communication and open fair treatment of your suppliers and trades is the best way we know of avoiding or resolving disputes.

Good communication requires the keeping of accurate records through site diaries, site instructions, trade contracts and variations to contracts.

Accurate drawings, specifications and detailed scopes of works provided to suppliers and contractors during the tendering stage is the foundation of establishing your communications system for the project.

Spend a little time on this in the early stages and get it right, we guarantee it will be time well spent.

Advise affected trades and suppliers early of changes to your schedule or requirements to allow them the maximum time to respond and minimise the impact on their business.

Remain Disciplined

It is easy to start off well and have good intentions, the trick is to keep it up and remain disciplined throughout the project.

Refer back to your course notes, view tutorials and use the resources and tools we provide to keep yourself motivated and on track.

As Dale Carnegie says:

“plan your work, work your plan”

In Section 1, we looked at the specific requirements for owner builders in the Australian Capital Territory, with a particular focus on the application process and appointing then working with a building surveyor who will act as your certifier.

We will now go on to give you an introduction to the generic skills and knowledge required to assist you in managing your owner builder project.

Whilst you may take on some of the actual labour and physical work on your project, it is most likely that your primary role on the site will be that of Project Manager, coordinating each of the individual tasks and activities that will be required to keep the job running smoothly.

2.1 What is Project Management?

Project management is a documented systematic process which allows you to manage the tasks required to complete a project.

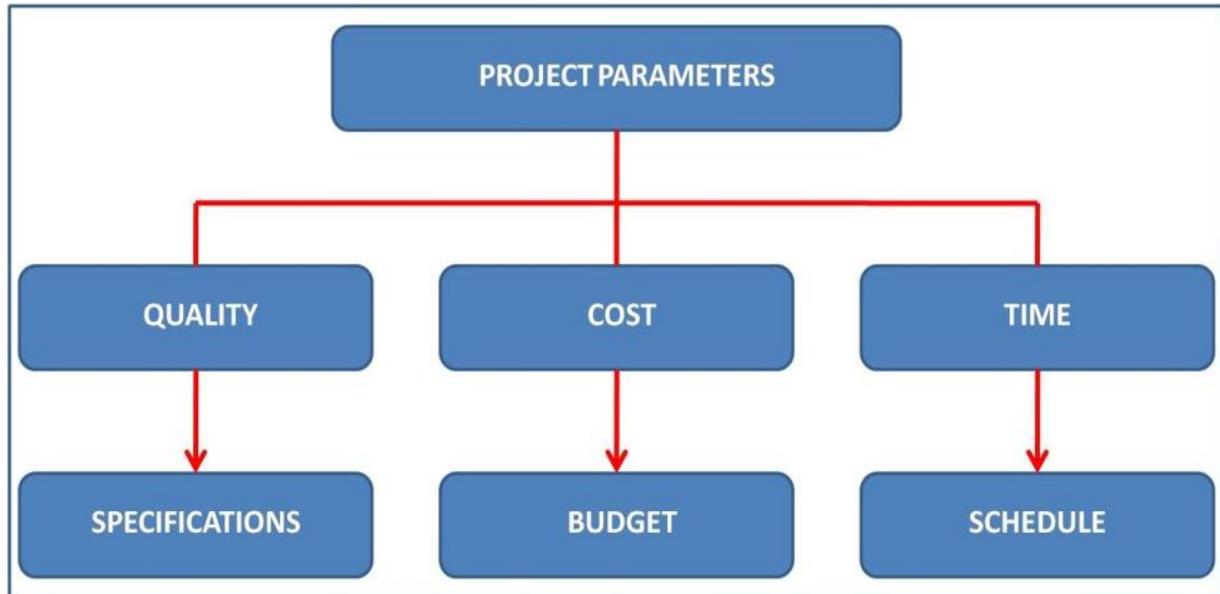
In establishing a project we need to first consider the following steps:



- 1. Define the Project**
- 2. Plan the Project**
- 3. Implement the Plan**
- 4. Complete the Project**
- 5. Evaluating the Project**

A project is a defined undertaking which has a beginning and an end, carried out to meet established goals within three key areas:

- Cost linked to your budget
- Time linked to your schedule
- Quality linked to your specifications/scopes of work



Project Management is used in some form or another in pretty much everything we undertake in day to day life.

We identify a need to get something done and either consciously or unconsciously, set about achieving our goals.

Have you ever considered that the simplest of things we take for granted must, to some extent, be planned to ensure we end up with the expected outcome or result.

Complete the simple but very important exercise below.

Consider your responses carefully, as we will refer to them later in order to illustrate the importance of planning and managing all tasks you undertake.

2.1.1 Identifying a Project: (Define the Project)

The first step in successfully completing anything worthwhile is identifying a need.

Your decision to undertake a project as an owner builder could be based on any number of reasons, but in the most basic of terms you have identified a need.

Normally you will work through this in a team situation, perhaps as a husband and wife, partners or just enlisting the help of friends to brainstorm the activities required and the outcome.

You should:

1. Consider the project outcome carefully, what are you trying to achieve?
2. Write a project description or definition.
3. Establish the end result or expected outcome.
4. List all the items or features you require, break them down into must have and nice to have.
5. Look for and list several alternatives where you can.
6. Evaluate these alternatives and what affect they would have on the project and your lifestyle if they were adopted.
7. Choose a course of action.

Once we recognise a need to get something done, we need a plan.

This plan will be as simple or as complex as necessary to get the job done, but all plans will have a similar basic structure.

Each plan will generally involve a series of steps which need to be woven together to achieve a result.

Each item or step is generally referred to as a **TASK**.

2.1.2 Steps to Produce a Plan

- Identify the need to get something done
- Consider each task we need to complete
- Prioritise the order in which we undertake each task
- Define how long the project should take

- Assess what resources are required to complete the project

The above steps are the basics for producing a plan however, as before noted, remember that each of the steps will be as simple or complex as necessary depending on what we are trying to achieve.

Look at your completed exercise – did you consider all of the above points?

2.1.3 How do the tasks fit together?

When we develop a plan we need to consider how the tasks fit together.

Go back to the exercise – did you have your tasks in the correct order?

Without getting too technical, some tasks will need to be completed before the project can continue or move forward towards completion – links between these tasks are called **dependencies**.

If we go through the project from start to finish we can identify the things that need to be done and give them a basic order.

Once a basic order is determined we can establish or estimate the time it will take to complete the project based on the cumulative sum of the individual but related **(dependent)** tasks.

The link between dependencies throughout the project will define a **critical path** and determine the minimum or expected timeline for the completion of each task and ultimately the project.

Can you identify the critical path in your exercise?

2.2 How do I keep the project on track?

Three important steps in keeping your project ‘on track’

- Communicate
- Analyse
- Adjust

2.2.1 Communication

In just about everything we do throughout our life, we need to communicate – the basic skills of speech or the written word is what helps us get things done through coordinating the available resources.

Running a small construction project is no different.

As the owner builder you are required to be the key communicator for your project and you need to ensure that all necessary information gets to the relevant trades, contractors and suppliers.

This information must be –

- Accurate
- Timely
- Relevant

Accuracy:

It is important to ensure that what you tell all suppliers and contractors is correct and to make sure they understand what it is that you want.

Not getting the information across correctly will probably lead to works having to be redone with the possibility of costly financial overruns through variations to the contract.

Timely:

While you are running the project and coordinating trades it will be necessary to constantly look ahead and determine when tasks will need to be completed.

Remember that trades people and suppliers are not sitting around waiting for your call – it will generally not be possible, nor is it reasonable to expect, to call them the night before you require them on site and have them jump to satisfy your needs.

Any tradesman or supplier worth their salt will have a 'book' of work, and it will be necessary to carefully coordinate with all your providers to make sure their availability suits your projected schedule.

Relevant:

The information you pass on to tradespersons, suppliers and contractors should be relevant to the tasks they are going to perform for you.

Too much information on non relevant project matters will tend to make them ignore or just skim any information you provide and lessen the effectiveness of your communication.

Analyse:

Throughout the project it will be necessary to keep a general overview and monitor how everything is running.

Becoming familiar with your schedule of works and continually looking ahead will help you foresee any potential problems or conflicts which may impact on your project either by way of time or money.

Remember, once the expected quality or finish is finalized, your primary concerns will become **“ON TIME – ON BUDGET”**.

Constantly ask yourself –

- Is the schedule realistic?
- Is there anything affecting the schedule?
- What are the potential problems in each stage of the project?
- Can you identify key points in the project which mark the start or completion of a particular phase of the construction (**milestones**)?

These milestones are significant in the monitoring process of the

project – they provide defined points in time at which a group of related tasks are scheduled to be completed

Adjust:

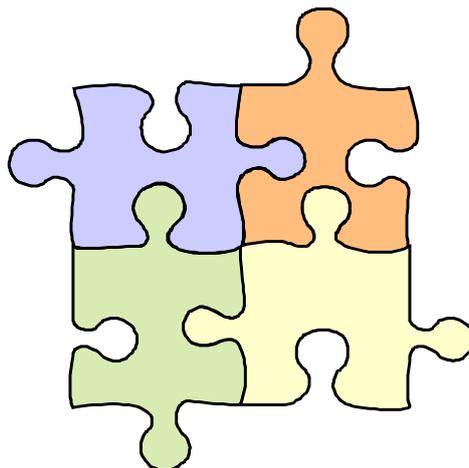
When a potential problem or conflict is identified through your monitoring of the project, be prepared to adjust your plan.

All plans must be flexible, as from time to time, unforeseen circumstances will make your original schedules or budgets impossible to achieve.

When making changes to your plan, make sure you go back through the steps discussed earlier in this section and apply basic project management principles.

REMEMBER

“Most problems can be solved and all things are possible when we break them down into simple parts or pieces of a puzzle”



2.3 DESIGN

The design process starts from the minute you first decide to build your new home.

Most people will start collecting their thoughts, ideas and concepts from that minute, clipping photos, articles and floor plans from magazines, journals and brochures, but how do you turn those thoughts into reality.

The best way we know is to sit down, collect your thoughts and then carefully prepare them into a logical and complete presentation that you can take to your selected designer.

Initially it will be important to consider big ticket items, gradually working your way through to the finer detail.

It really is like putting together a big jigsaw puzzle.



Consider the following:

- *What is your preferred or dream lifestyle?*

Do you like to live outdoors and enjoy your garden, or do you prefer large indoor living areas and an open floor plan?

Is your family at an age where you want privacy or do you need to be close and easily accessible to young children?

Are there any specific access requirements for people with impairments?

Is sound proofing necessary for media rooms or workspaces?

- *What is a realistic budget?*

Setting a realistic budget will be based on many factors including disposable income, savings, borrowing capacity.

When you decide on your budget, keep the figure in mind as you work through the design.

Decide on a quality range of fittings and identify them as average, medium or high end to suit your budget.

Once an estimate of the gross floor area of the dwelling is established and any special site consideration are identified, it is possible to determine a ball park figure based solely on indicative square meter rates for your area.

- *Have you chosen a site?*

As simple as this may sound, some people miss the fact that for other than the most basic of designs, to a large extent, either, the site will determine the design or the design will determine the site.

For example a contemporary split level home will be far more effective and efficient on a sloping site, and a raft or monolith slab will only truly sit well with a flat building block.

Existing foliage, ground water and runoff, adjacent buildings will all have an influence on how you best achieve an efficient and functional design.

- *Does the site present any unique problems or design considerations?*

Slope, easements, setbacks, tree preservation order and land shape will all directly impact on the design of your dwelling.

- *What are important design features of the house?*

Three, four or five bedrooms, ensuites, walk in robes, pantries, built in cabinetry, 9 foot high ceilings, car accommodation, media rooms, smart wiring for multimedia, communications facilities, island benches, built in appliances are all considerations.

Your list should include those items which are negotiable and those which are not.

ie must have versus nice to have.

- *What is your preferred construction method?*
 - Brick Veneer (timber or steel frame)
 - Cavity Brick
 - Timber Frame Clad
 - Single Skin Masonry (blockwork)
 - Construction Boards, (blue board)
 - Pole House
 - Hebel or other lightweight composites

All of the materials and construction methods listed have unique qualities which make them more or less desirable for a given construction, your decision will be based on, look, feel, functionality, cost, energy efficiency, durability and compliance issues.

- *Consider the quality of fittings, fitments and fixtures.*

Are you building a high end product with the most expensive of fittings or will a more modest fitout satisfy your requirements.

Remember the sky is the limit when it comes to specifying the final fit of your new home or renovation, but it all comes at a cost.

- *Are there any special legislative requirements of the location?*

Once you have considered all of the previous requirements, you should be ready to put your ideas into a format that you can take to a designer and firm up concept drawings.

You will most likely have developed two things:*1. A preliminary sketch of the floor plan*

- Shape your information into a basic line drawing showing proposed room sizes and locations and the general shape of the dwelling and its location on the site.

When you set this up, consider the value of investing a few dollars in a sketch pad with an established grid.

1mm and 10mm increments will allow a sketch at 1:100 to be easily produced.

Use a 300mm base reference in your design, 900, 1200, 1500, 1800, 2100, 2400, 2700 and 3000 all fit well with standard material cut lengths and relates well to floor tiles, villaboard, plasterboard, window and door sizes etc

Consider high traffic areas, large furniture, cross flow ventilation and efficient use of available space (no unusable voids)

2. A detailed checklist of design features

- Ideas from:
 - Kit Home Magazines
 - Building Journals
 - Trade Center Information
 - Friends homes
 - Previous homes (like and dislikes)
 - Project homes and display villages
 - The internet
- Prepare information on your preferred:
 - Exterior look (the fascade)
 - External cladding
 - External colours
 - Internal building fabric and materials
 - Internal colours
 - Internal features, (bulkheads, cathedral ceilings)
 - Internal fixtures and fitments

- Consider regulations and planning schemes
 - Look at the covenants governing the site
 - Discuss the zoning and intended use with your certifier
 - Are there any easements or encumbrances
- Consider finding a consultant that can provide a three dimensional rendering of the inside and outside of the dwelling, a “walk through” function such as is possible with “My Virtual House” will give you a good feel for the layout.

Ask you Abacus Training Consultant to give you some guidance in this area.

In addition to those items mentioned above, the following factors will all affect your design:

2.3.1 Site

SITE CONSIDERATIONS:



When considering the site for your new home, or when undertaking a proposed extension to an existing dwelling, there are several important factors that will affect the design and cost of your project.

The following list is not exhaustive, but ensuring each is considered fully will go a long way in establishing an appropriate design and provide for accurately assessing the cost of the construction.

ENVIRONMENTAL FACTORS

Prevailing Breezes

Consider the effect of the prevailing wind on your new dwelling, it may be a gentle summer sea breeze you are trying to catch, or perhaps design a cosy nook to escape the southerly buster.

Careful consideration of the prevailing elements not just wind and sun directions, will go a long way in designing a home that is both comfortable and energy efficient.

Will it take full advantage of cooling breezes?

Will it be “too exposed” to the elements?

Have you taken into consideration the positioning of doors and windows to make the most out of the anticipated conditions?

Cross flow ventilation is a major factor in reducing cooling costs during the warmer months.

Will an elevated construction better serve your needs?

Orientation

Orientation to achieve the most efficient energy design is considered in detail in the energy efficiency topic of this kit, however at the design stage, you may be limited in options in respect to locating the house on the site.

Be aware of the impact of site placement on your design and the final functionality of your home.

Be aware of tree preservations or site setback limits that may impose restrictions on design or location of your propose dwelling.

Sloping Blocks

Some people overlook a sloping block because of the difficulties and added cost normally associated with building on these sites.

At times, a block may be purchased at a discounted rate when compared to other more accessible blocks in a similar area.

Often this saving together with careful design and planning can provide not only a cost effective solutions but also an opportunity to create a truly unique home with real character.

We certainly would not recommend this option to everyone, but for some, it may fit perfectly with the vision of your new home.

Having said that, be certain of additional construction costs and consider things like access to services.

A rising main to the sewer at the top of the street can run into several thousands of dollars as can the required preparation of building pads or the connection of services such as water and electricity.

Do your homework and seek professional advice before making any decisions or committing to a design.

Retaining walls and overland water flows can be overcome through efficient design, however the added cost may make the project financially prohibitive.

Wind Loading

Have you considered the effect of wind loading on your property and the associated construction costs?

The wind loading for a given site will determine a range of design criteria including:



- Wind Bracing
- Window glazing
- Fixing of roofing materials
- Tie downs

Basically, the higher the wind loading, the more rigorous the fixing, bracing and general structure will need to be.

This adds dollars to the overall cost of the project and must be considered.

Wind loading is determined considering a number of factors including location of the site (largely based on latitude), proximity to the coastline, with more local effects such as density of dwellings, trees or structures surrounding the property and the slope, style (gable, hip, flat, skillion etc) orientation to the prevailing winds and material used.

It is the responsibility of the designer to calculate the loads and base the structural components of the design on these values.

The certifier will inspect these components for compliance at various stages throughout the construction.

2.3.2 Energy Rating

Energy efficiency is becoming increasingly important in the design of any new dwelling.

In fact the Building Code of Australia now mandates and specifies the Energy Efficiency Rating which must be achieved through design for new homes.

Several computer based programs exist to assist the building designer to ensure energy efficiency targets are met through homes that are designed to use less potable water and be responsible for fewer greenhouse gas emissions by setting energy and water reduction targets for house and units.



The user (usually the building designer) enters data relating to the house or unit design - such as location, size, building materials etc - into the program analyses this data and determines how it scores against specified Energy, Water and Thermal efficiency targets.

Second generation energy efficiency calculator programs such as Accurate and First Rate provide a project report which verifies the rating and supports the submission of compliance on approved plans.

These commitments should be marked on the house plans.

You should do this before you go to your Certifier or to council so that you are able to correctly answer the questions and provide the relevant details of your proposed construction.

Other areas you should consider to make your house as 'green' as possible include:

- Using the 'star rating' system when selecting PC Items such as dishwashers, dryers and washing machines
- Consider the benefit of installing rainwater tanks, (some councils insist on this for new dwellings)

- Using grey water for watering gardens and lawns
- Sound design principles including architectural shade such as sails, eaves and porticos

In short, the best way to achieve an energy efficient design, is to work with the environment, not against it.

The following extract from the A Guide Building and Renovating Your Home provides contact details for obtaining advice on good design and energy ratings for you new home.

A valuable source of ideas and further information is the Home Energy Advice Team (HEAT) located at Manuka Arcade. HEAT is a free service provided by Environment ACT that is designed to advise Canberra residents on ways to maximise household energy efficiency. The service provides residents with free, independent advice on ways to improve household energy efficiency, including information on the energy efficiency of appliances. The service includes technical advice from expert staff, a telephone advisory service (02) 6260 6165 and face to face advice by appointment at first floor Manuka Arcade, Franklin Street Manuka.

2.3.3 Bushfire Management Plans

The state and territory governments have declared specific areas as being 'bushfire prone' if you are building in one of these areas, you will need to ensure your design is consistent with any requirements of the Bush Fire Management Plan.

Rural Fire Brigades and local councils will publish information and fact sheets to assist you and your designer or certifier in ensuring your proposed construction complies with all regulations.

2.3.4 Covenants and Heritage Requirements

When you mention covenants, most people think of new estates and the restrictions imposed on design and materials for a proposed new dwelling.

In fact, a covenant may exist on any construction, new or renovation and could affect the financial viability of your proposed works.



A heritage order is in effect a covenant as it imposes restrictions on the type of construction employed, the materials used, the overall design, concept and finished look of the project.

Some covenants will be limited to external fascades and visible structures while others may include land area to building ratios (minimum and maximum), fences, driveways, street crossings, water tanks etc.

Make certain you are fully conversant with all the factors that affect your site before completing or settling on a design.

The following extract from the *“A Guide Building and Renovating Your Home”* provides information and contact details for discussing heritage requirements and design considerations, it also highlights the availability of the design resource *“Guide to Good Design”* which is available for download from the ACTPLA Website.

One of the most important aspects of building, extending or renovating your home is the design. Take the time to look at designs, visit displays and exhibitions and find out the planning codes that apply in your area. It is often helpful to discuss your proposals in the early stages with the ACT Planning and Land Authority’s technical staff, particularly if you are unsure whether your proposal meets the appropriate requirements. It is a good idea to discuss your proposals with neighbours if you are planning substantial extensions or a new house in established areas.

Special rules apply for heritage properties. If you own a home in a heritage-listed area you may be able to access the Heritage Advisory Service provided on behalf of Environment ACT. It is a free service designed to assist people wishing to renovate or extend their heritage house, and will also assist those concerned about potential problems associated with undertaking building work in heritage areas. Freeman Leeson Architects Pty Ltd provides the service at Suite 3, 28 Bougainville Street, Manuka 6295 3311.

An important consideration that is often overlooked is that the design you chose should suit your particular block. This includes considering:

- the shape of the block,
- whether the block is flat or on a slope,
- where north is,
- whether there is a predominant style in the area,
- whether your block is in an historic area or
- whether there are particular views you want to take advantage of
- the location of adjacent buildings and private outdoor areas.

Replacement houses in existing developed areas or substantial extensions that may impact on neighbours or the streetscape are required to go through a pre-application process. This includes preparing a site analysis as the basis of the design and consultation with the neighbours. Detailed information about what the Authority requires is available in a useful series of publications designed to assist proponents prepare Development Applications. General information and useful information about design is available in the Guide to Good Design book. These books are available from the Authority’s Customer Service Centre and for downloading from our website at www.actpla.act.gov.au.

2.3.5 Design Consultants

The decision to use an Architect over a Building Designer will be determined by two primary considerations:

- Do you have a basic design concept and idea about how you want the dwelling to look and feel (form and function)
- Secondly, what level of administrative involvement you wish to have in the project

Typically, an Architect can provide services well above the level of the Designer, including site administration and organisation.

A Designer will cost you around 1.5% of the total contract value, whereas an Architect will probably be in the amount of 7.5% of the total contract value.

A considerable difference, but this should be reflected in the level of service provided.

Architects tend to be more artistry focused, where designers are technically focused and more concerned about the functionality of the design rather than the aesthetics.

Obviously there are exceptions to the rule in both cases and it is up to you to determine what it is you want, and just what each of the providers can offer.

2.4 BUDGET ESTIMATING

2.4.1 Establishing a Budget

How would you start in establishing a budget?



Well, first you need to decide how much you want to spend and how much you can afford to spend.

This may determine the size and type of dwelling you can construct, but to a large extent, the location of your land will be a major consideration.

Whilst it is not always an absolute, a good rule of thumb is that the cost of the dwelling should equal the land value.

That is if you purchase a block for \$180,000.00 then a build cost of \$180,000.00, would put you in a price range which would neither under nor over capitalise your property.

Do not let this be the only deciding factor, look at what properties are selling for in the area and consider the type, size and quality of the homes.

Given the above, it is easy to determine how much you should spend.

What is more difficult is the process to determine how much your vision is going to cost to build.

While we could go into many different ways of working out an estimate, there is a relatively simple rule to check your figures.

All constructions can be related back to a square meter construction cost.

This will vary given a range of variables including:

- Where the project is located
- The quality of the fittings
- The availability of tradesperson in the area at the time

- The complexity of the construction

Let's look at how each of the above affects the cost of construction.

Location

Several location related issues arise when you consider the cost of construction.

Access to the site is a factor and the associated transport costs or the difficulty in getting materials and or equipment onto site.

By way of example, consider the increase in cost of getting equipment onto an extremely steep site or one that is located many miles from services or suppliers.

To a lesser extent, homes built in prestige areas may command a higher square meter rate due to a perceived ability to pay, not fair, but a fact of life.

Quality of Fittings

This is obvious, but the higher the quality of the fittings, fitments and fixtures you specify, the greater the cost of the dwelling.

All items you specify can vary in price from the basic to the extraordinary.

A set of taps for over your bath can range from \$80.00 to \$1200.00 and more, or a cooktop and range in the kitchen can vary from as little as \$400.00 to as much as \$20,000.00 plus.

Paint is another area that people often overlook as a major contributor the overall cost of the project.

An average quality paint system will cost around \$45.00 per square meter to over \$180.00 per square meter to supply and apply the finishes.

In most cases this is not a huge issue, but you do need to be aware that the range of materials available is enormous, and anything can be achieved at a price.

However, you do not need to spend anywhere like the top end figures we have quoted to realise a high quality job.

Perhaps even more so, owner builders considering a very high end finish, can realise enormous savings through good management and sound tendering and astute purchasing.

Big savings can be made at all budget levels.

Availability of Tradespersons

Many times this will be out of your control, but if you can hold off and not build during 'building booms' you will find more reasonable prices during quieter times.



Interest rates tend to even themselves over the period of an average loan, but those who astutely lock in to a fixed rate can save real money over the life of the loan.

This is often aligned to the building cycle and you need to watch closely what is going on and the projected movements in building activity.

When a tradesperson has plenty of work, it is common to '*high ball*' quotations, that is, submit an unrealistically high tender.

In most cases, the tradesperson does not really want the work, and will only undertake the project if they realise a premium.

Complexity of the Construction

It is easy to estimate the labour and material costs for simple constructions.

Traditional building methods have well established associated labour rates, and any tradesperson worth their salt will be more than competent to provide you with an offer during the tender process.

More complex structures and non conventional building methods will generally be more expensive, partly due to the increased labour content and partly due to the possibility of the unknowns.

Unique and innovative design features can certainly add value and appeal to your new home, but can lead to increased costs and in extreme cases, limit your market at the time of resale.

Producing an Initial Budget

Once you have decided on the design and the quality of the construction, you are ready to produce a preliminary budget.

This can be achieved quite simple through a simple square meter formula multiplied by a rate established considering all the factors previously discussed in this section.

This can be finetuned, but we do recommend engaging an experienced builder or quantity surveyor to develop a realistic estimate based on the square meter rate, knowledge of the current labour market and trade availability.

As a guide, once an accurate budget estimate is established, an estimate of the value of each trade, service and supply can be determined using the average weighting of each structural component against the total estimate.

For example, as a rule, the value of the plumbing on a domestic construction project is in the order of 8% of the total value of the works, therefore for a project with an estimated build value of \$220,000.00, you could expect plumbing quotations to be around \$17,600.00.

The above example is only an approximation, it will vary dependant on extraordinary items.

A full breakdown on the values of specific trades against total contract value is provided below, it is a guide only and can vary significantly due to any number of factors including:

- Availability of trade contractors at any given time
- Specific design features of the proposed dwelling
- Material availability
- Site considerations
- Covenants

They are a good starting or reference point.

This table is best used as a benchmark to determine then justify larges departures from the amounts listed below.

We are unable to cover all the methods of construction in one table, this information is based on a 'typical' brick veneer, single storey slab on ground cottage with ducted airconditioning.

It assumes traditional design and building methods/concepts are used in the construction, similar to what you would get in an off the shelf project home.

Scaffolding is not considered and should always be treated as a cost outside the scope of developing a budget in this way.

To establish your initial budget estimate, use a square meter rate to ball park expected construction costs.

That is, a 250 square meter home budgeted at \$1150.00 per square meter should come in at around \$287,500.00

Percentage Breakdown of Construction Costs Typical Brick Veneer Cottage Single Storey, Slab on Ground, Ducted Air Conditioning, No Scaffolding Employing Traditional Design Concepts and Building Methods		
Trade or Service	Percentage of Contract Value	Associated Cost Against a \$330,000.00 Project
Preliminaries	5%	\$16,500
Excavator	3%	\$9,900
Concretor	6%	\$19,800
Plumber and Drainer	6%	\$19,800
Electrician	3%	\$9,900
Carpenter (Labour)	4%	\$13,200
Wall Frames – Trusses - Joinery	18%	\$59,400
Roofer	4%	\$13,200
Insulation	1%	\$3,300
Bricklayer	7%	\$23,100
Windows – Doors	7%	\$23,100
Internal Linings	4%	\$13,200
Renderer	2%	\$6,600
Waterproofing	1%	\$3,300
Floor and Wall Tiling	2%	\$6,600
Painter	4%	\$13,200
Air Conditioning	5%	\$16,500
Prime Cost Items	12%	\$39,600
Floor Coverings	3%	\$9,900
Driveway	2%	\$6,600
Landscaping	1%	\$3,300

****Note:**

These figures are a rough indicator only and are most useful in identifying large variations in contractors quotations.

For example, if the plumbing prices came in at 25% of the total budget estimate, you would need to look at what had been specified or the scope of works against what the tenders had included. There may be an error in the specifications/scope of works, or there may be factors affecting the price which you had not considered.

Each project will be different but this is a good place to start.

Building Cost Guide

The Australian Capital Territory has produced a cost of building work determination which is used by Certifiers to establish an estimate on the cost of building works subject to a building approval.

It is this estimate that is used to establish fees that relate to your works when applying for a Building Approval.

The guide is very generic and is to be referred to with caution, taking into consideration each of the design considerations previously discussed.

The rates indicated in the guide would relate to a standard dwelling using average quality fittings and typical accepted building practises.

The 2009 version of the guide lists a per square meter build cost of \$1,130.00 for a single detached dwelling.

It does not differentiate between single and multi storey dwellings.

This figure is a good indicative price for a standard dwelling and your budget estimate can be varied to take into account project specifics.

2.5 PLAN READING

Plans, working drawings and associated specifications form the basis of your construction and govern the way in which the project will be scheduled and indeed managed.



They provide the information needed by each of the trades and suppliers to ensure what is offered in their quotations, matches what you expect and what the authorities have approved.

Approved plans are a legal document, and the accompanying specifications will be integral to any contract you have entered into with

suppliers and contractors.

In general, your plans will as a minimum, include the following information:

- The location of the building on the site
- The location and size of the spaces in the building
- The materials to be used
- Fittings, fixtures and finishes
- Bracing Details (wind loading)
- Window and Door Schedules
- Foundation and Footing details
- Locations of services (gas, water, drainage, electrical etc)

2.5.1 Conventions

Drawings are produced in line with standard conventions, a “common language” if you like that is readily understood by everyone in the building trades.

These conventions include things like line thickness, linetypes, cross hatching, scales, views, orientations, title blocks, projections, acronyms and abbreviations, all designed to clearly state the intent of the design.

These conventions are typically consistent on a worldwide basis and language barriers aside, you should be able to travel to Canada, the U.S. or the U.K., pick up a set of drawings and understand the content.

2.5.2 Projections

Whilst in most cases, a typical domestic dwelling will use a simple 2D presentation to convey the information.

They will generally include:

- Plan View
- Elevations
- Sections

AutoCad and other computer based drawing programs have made it possible to produce relatively inexpensive renderings from working drawings, based on a schedule of finishes.

This allows the owner or the builder to get a better feel for the finished product.

In the past this was only achieved through expensive and time consuming artist's impressions.

2.5.3 Views and Construction Drawings

Plans that would form a set of drawings for a domestic dwelling would include:

- **Site Plan**
 - The site plan is a vertical plan view of the building site.
 - It will generally show the physical dimensions of the site and the location of proposed or existing structures.

- Additionally the site plan will allow identification of the Real Property Description (RPD), area of the allotment, access roads, service and utility locations or connection points, contour lines and other significant physical or geographic features.

Often, site plans will also include information on finished floor levels of major structures related to the site or drawing datum.

Existing trees to be saved, existing trees to be removed and significant proposed planting may also be included.

The site plan can be developed to determine the required amounts of cut and or fill allowing accurate estimations of excavations or imported fill.

Site plans are normally drawn at a scale of 1:200 .

- **Foundation Plans**

Often these are prepared by the geotechnical engineer and are based on the findings of soil samples and bearing tests.

Based on these reports and the design of the dwelling, the foundation and footing plans can be prepared.

The foundation plan will normally be drawn at a scale of 1:100 and will include the following information:

- Depth, width and location of all strip footings
- Size and location of piers, beams and thickening
- Location and type of foundation walls if required
- Thickness and strength of the concrete slab
- Size and type of reinforcement materials including ligatures, fabric mesh
- Set downs for shower, bathrooms and other wet areas

- **Elevations**

Typically a set of drawings for a domestic dwelling will include at least four elevations.

Traditionally these would have been described as Northern, Southern, Eastern and Western Elevation.

Recent times have seen a departure from this convention with the elevation more likely to be described as 1, 2, 3 and 4 with a symbol or “rose” to provide orientation.

Normally elevations will be drawn at a scale of 1:100



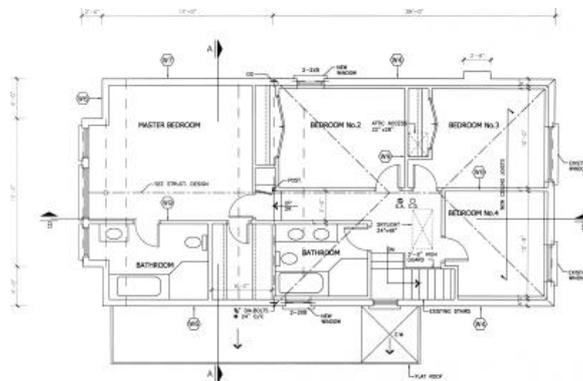
Information shown on an elevation will include:

- Windows and doors to external walls
- External cladding
- Roof slope, pitch and design features
- Eaves overhang

- **Plan View**

The floor plan is the heart of the working drawings, it displays the overall shape and size of not only the dwellings external walls, but also the layout, design, orientation, access and size of individual rooms.

A visit to site will generally see contractors referring primarily to the plan view for the location and dimensions of the project.



Additionally the plan will normally include:

- Dimensions
- Wall types and thicknesses
- Position of openings, doors, windows etc
- Roof outline and style

Floor plans are normally drawn at a scale of 1:100 and on 'specified drawings' may include, the bracing plan, window and door schedules, schedule of finishes, notes and remarks plus a legend to assist in interpreting the drawings.

- **Bracing Plan**

A bracing plan is normally drawn at a scale of 1:100, it may be as simple as a single line drawing which locates and defines the bracing type, fixing and distribution throughout the structure.

Ply bracing, solid wall, timber features, hardboard and metal bracing are all detailed and the associated computations are included to demonstrate compliance of the design with consideration to wind loading, roof style, and geographic or physical development affecting the site.

The calculations are developed for two directions and are based on spacing, fixing and rigidity of the bracing type.

This drawing will if required include tie down details often developed as a schedule indicating the method of fixing or tying structural framing members to each other, from the roof sheeting to the footings.

- Roof sheets to roof battens
- Roof battens to rafters
- Rafters to top plates
- Top plates to studs
- Studs to bottom plates
- Bottom plates to slab and footing system
- **Electrical and Plumbing Layouts**

Services are often detailed in separate plan views indicating location, type and size of services, pipe work, cabling, outlets and connections.

When you are determining your preliminary sketches and designs, you should indicate at least the location of power outlets, coaxial cables, telephone points and exterior taps.

Using this as the basis of their design, the engineer, draftsman or architect can establish service sizing and any other requirements or considerations.

2.5.4 Identifying Drawings

Whilst it is a feature little seen on drawings these days, the inclusion of a cover page with a drawing index is invaluable in quickly referencing and accessing information on site.

In the absence of an index system, you will need to check the title block on each drawing to establish what information is located on the sheet.

The Title Block may include:

- Client details
- Project details
- Project location
- Consultant details
- Drawn by
- Checked by
- Issue or revision code
- Scale
- Date
- Drawing number
- Associated drawings

Generally they are located on the bottom right hand corner of the plan and may be oriented vertically or horizontally.

TYPICAL TITLE BLOCK

Associated Drawings: OBS2-HYD OBS3-HYDA	CLIENT Desmond and Molly Jones					
	PROJECT Proposed Single Story Dwelling					
Revision Number: OBS1-HYD/3	LOCATION 57 Penny Lane, Marketplace, Queensland, 4208					
Amendments: Include bidet to ensuite in master level one	HYDRAULIC CONSULTANT Rick Heaton, A.H.S.C.A					
	Drawn	Checked	Scale	Project No:	Drawing No:	Date:
R.B.H	KSA	1:100	OBS – 1/06	OBS1-HYD/3	110106	

In this case, the clients are Desmond and Molly Jones, who are having built a single storey domestic dwelling at 57 Penny Lane, Marketplace, Queensland.

The drawing is related to the hydraulic design for the property and is associated with two other drawings, OBS2-HYD and OBS3-HYD.

The drawing is the third revision and has been amended to include a bidet in the ensuite to the master bedroom.

It is extremely important to ensure all contractors and consultants are in receipt of the latest versions of any drawings that will affect their contracted works and that they are aware of any variations which have occurred as a result of these changes.

It is the responsibility of the Owner Builder to ensure any variations to the contract are agreed to, signed by all affected parties and maintained in the project record keeping system.

A well administered project will include the use of a document transmittal system and register to ensure all contractors have received and understood the latest documentation including amendment to working or construction drawings.

2.5.5 Scale

Scale allows the designer to maintain each component included in the drawing to appear in their appropriate proportion and location.

As previously stated, the scale will be determined by the level of information that is required to be displayed to the reader, ensuring clarity of the instructions or information.

The scale is determined by:

- Type of information to be communicated
- Complexity of the item, fitment, fixture or structure being drawn
- Size of the drawing sheet used
- A balance of time and cost of the drawing production

Because buildings and properties are large, scale drawings need to be used.

To accurately interpret information on plans, it is helpful to be able to read a scale rule.

A scale rule is the same as an ordinary rule in that it will have interval marks at 1mm apart.

A longer line is included at 5mm intervals and an even longer and more prominent line at the 10mm interval.

The 10mm mark is called the “graduation number or index”, this number indicates the “scaled up value rather than the true length.

We recommend using a Kent64M scale rule, this includes all the normal scales that would exist on a set of house plans.

Make certain when using the rule that the scale indicated matches the scale shown on the drawing (usually in the Title Block).

2.5.6 Dimensioning

A dimension provides exact details on the physical size of an object on a drawing and is most commonly shown in millimeters (mm).

As a rule and by convention, dimensions will be an overall length of the projection at provided the furthest from the drawing, working in as running dimensions to the smallest dimension on that projection being located closest to the drawing.

Dimensions can be either naturally centered, 'forced' or outside the associated dimension line, but in all cases must be easily identifiable with the related structure or building component.

2.5.7 Notes, Lettering, Abbreviations and Symbols

As we trend more and more to fully specified drawings which replace the written specification, the notes, schedules, tables and explanations provided on the drawing take on an increasing importance.

Notes provide clearer detail on items that are difficult to draw, abbreviations and symbols save time and space on the drawing, but should be accompanied by an explanatory legend.

Standard abbreviations and symbology must be used and these are detailed in Australian Standard 1100.301.

2.5.8 Window and Door Conventions

The following important rules are necessary when describing or ordering windows from a drawing:

- **Size**

When describing a window, it is convention to specify the height first and then the width.

An 1800 x 2400 window is therefore 1800mm high and 2400 mm wide.

This is commonly written as 1824

- **Configuration**

The configuration of windows (sliding or fixed panes) is nominated by the letters X and O.

An X drawn on a window indicates the associated pane is sliding or opening.

An O indicates the pane is fixed.

So a window described as 1218XOX is a 1200 high by 1800 wide window with the two outside panels opening and the center panel fixed.

- **Orientation**

Windows on a drawing are considered as viewed from outside the building looking toward the window.

A window described as 1221OX, is a 1200 high by 2100 wide window with two panes.

In this example, when viewed from external, the left hand pane would be fixed and the right hand pane opening.

- **Numbering**

It is standard convention to start numbering from the main entry door and work clockwise around the property with a W designation indicating a window and D indicating a door.

The lower floors are completed first working up to the higher levels.

So, W1 – 2409O would represent the first window immediately to the left of the main entry door (when viewed from external) and of a size 2400 high and 900 wide with a single fixed pane.

(Most likely a side light or feature glazed panel at the main entrance)

2.5.9 Datums and Special Marks

Drawings will include important symbols or marks which establish reference criteria for correctly interpreting the drawing and the information contained on it.

For example a datum mark, \otimes RL100:00, provides the reference from which all floor levels, depths, and heights are measured or referenced.

A North symbol is generally included to further enhance orientation.

Cross hatching and line type or fill have distinct meanings which allow a trained reader to accurately interpret soil types, wall structures, materials used etc.

Use the legend or get hold of the Australian Standard to help you better understand the meanings of symbols and special marks.

2.6 MEASURING QUANTITIES

To establish a budget you will need to know how to undertake basic measuring, calculations and quantity calculations as they are relevant to the construction industry.

This section has been developed to assist you in understanding methods, terminology and processes used in estimating quantities.

This section presents several components from the Nationally Accredited Unit of Competency BCG1004A – Carry out Measurements and Calculations.

We will consider five main topics:

- Metric Measurement
- Tapes and Rules
- Calculations
 - Linear – length, width, thickness
 - Perimeter

- Area
- Volume
- Quantities

- Costing

2.6.1 Units

Millimeters and meters are the basic units of measurement used in the building industry.

Lengths are described in millimeters.

The only exception to this is where dimensions on a plan of 1:200 or greater may be given as meters to two (2) decimal places.

When recording measurements and dimensions in millimeters, the following conventions are used:

- If more than four (4) digits are required, the measurement is recorded in groups of three working from right to left leaving a distinct space after each group of digits.

11 000 45 768 56 890 12 300

- When there are four digits or less, no space is used.

4350 3400 125 88

Generally in the building industry, there is no requirement to identify measurements by use of the words millimeter or meter or their respective abbreviations mm or m.

Therefore 7653 would represent seven thousand six hundred and fifty three millimeters.

If a measurement is given with a decimal place and no further identification is taken to represent meters.

So, 4.6 would represent four meters 600 millimeters.

When the decimal point is used to indicate the thickness of materials such as sheet metal, then the mm abbreviation must be used.

For example:

0.55mm would be used to define a sheet of Colourbond Roofing and a sheet of Villaboard may be shown with a thickness of 4.5mm.

2.6.2 Tapes and Rules

Tapes, folding rules, and straight edges or staffs used in measurement taking are in general marked in accordance with the following table, index lines at 10mm intervals and 1 meter intervals are normally included.

Millimeters	Centimeters	Decimeters	Meters
1/1000 th of a meter	1/100 th of a meter	1/10 th of a meter	1.0 meters
1mm	10mm	100mm	1000mm

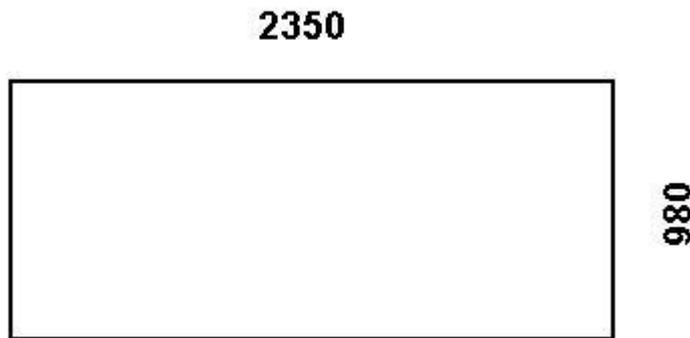
2.6.3 Calculations

Let's now consider perimeter, area and volume and the way we estimate these values from drawings.

2.6.3.1 Perimeter

The perimeter is the total length of the sides or outer boundary of a shape or a plane figure.

It is the total length of all sides.



In the example above, the calculations required to determine the perimeter would be:

$$2350 + 980 + 2350 + 980 = 6660\text{mm}$$

Perimeters are the units of measurements that would be used for anything to be ordered in lineal meters, items such as:

- Gutters
- Fascia Boards
- Skirting
- Architraves
- Cornice

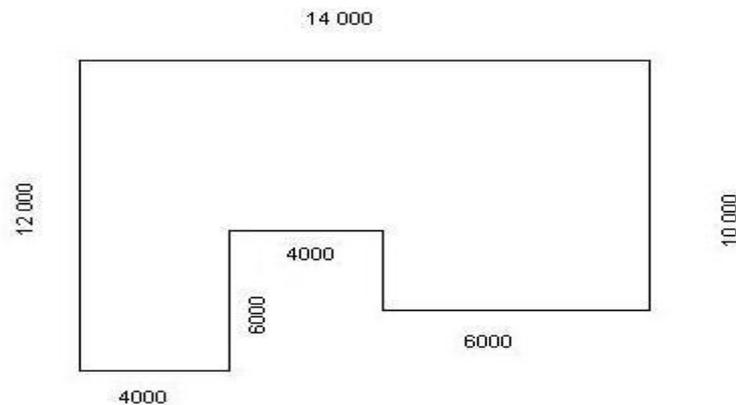
2.6.3.2 Area

Area is the amount of ground covered by a building, it is measured in square meters and for rectangles this is found by multiplying the length by the breadth of the structure.

The answer is normally express in square meters (m²).

Where the area of more complex shaped buildings or structures need to be calculated, we need to break the shape down into a combination of rectangles, triangles and in some instances semicircles or circles.

In the example below, three separate rectangles can be identified, we need to calculate the area of each one individually then add the areas to determine the total floor area.



- Rectangle one equals 12.0 meters multiplied by 4.0 meters
- Rectangle two equals 6.0 meters multiplied by 4.0 meters
- Rectangle three equals 6.0 meters multiplied by 10 meters

Mathematically this would be expressed by:

$$12.0\text{m} \times 4.0\text{m} = 48\text{m}^2$$

$$6.0\text{m} \times 4.0\text{m} = 24\text{m}^2$$

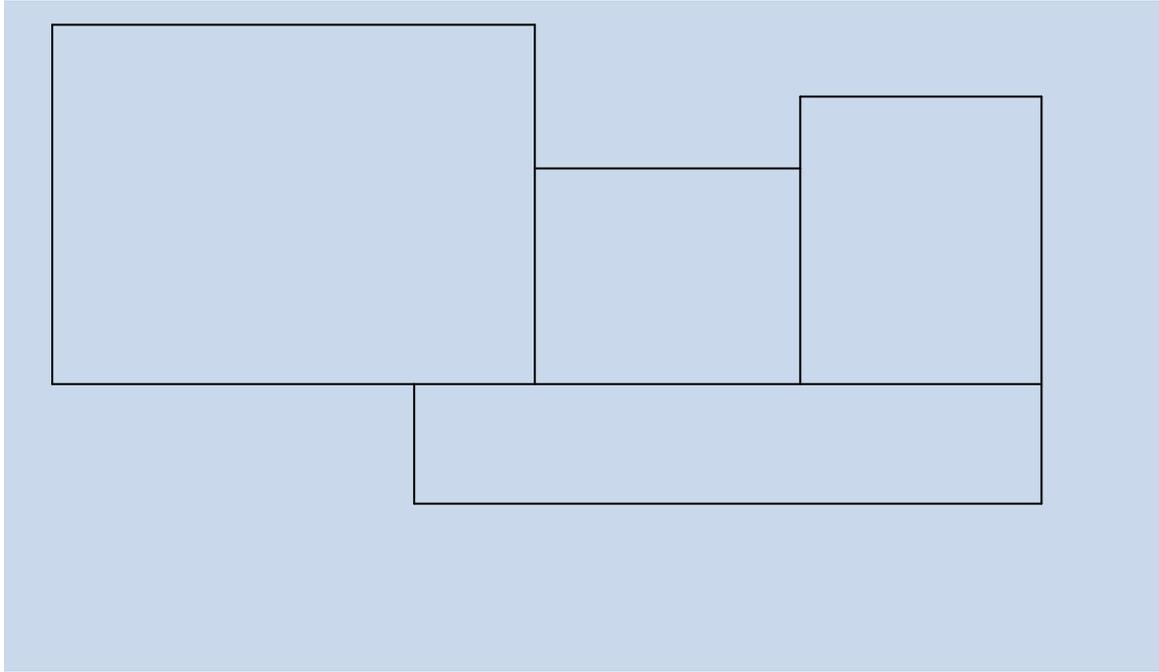
$$6.0\text{m} \times 10\text{m} = 60\text{m}^2$$

Adding these together gives the total square meter area.

$$48 + 24 + 60 = 132 \text{ m}^2$$

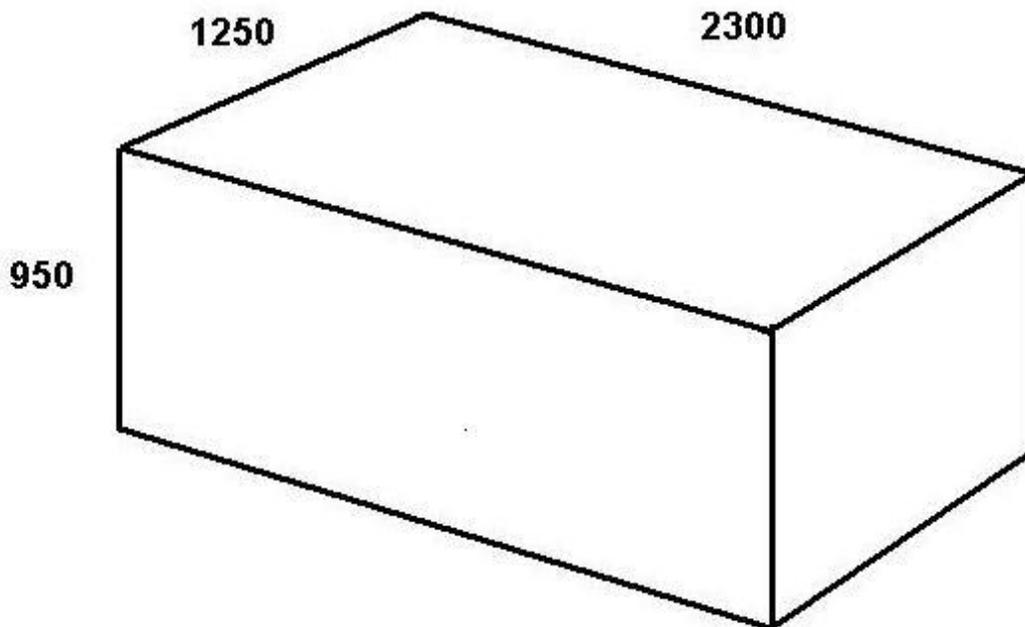
Square areas are used to determine things like:

- Paint quantities
- Floor and Wall Tiles
- Plasterboard



2.6.3.4 Volume

Volume is measured in m^3 (cubic meters)



It is calculated by multiplying the length by the breadth by the height.

So in the example above, $.95\text{m} \times 1.25\text{m} \times 2.3\text{m} = 2.73125\text{m}^3$

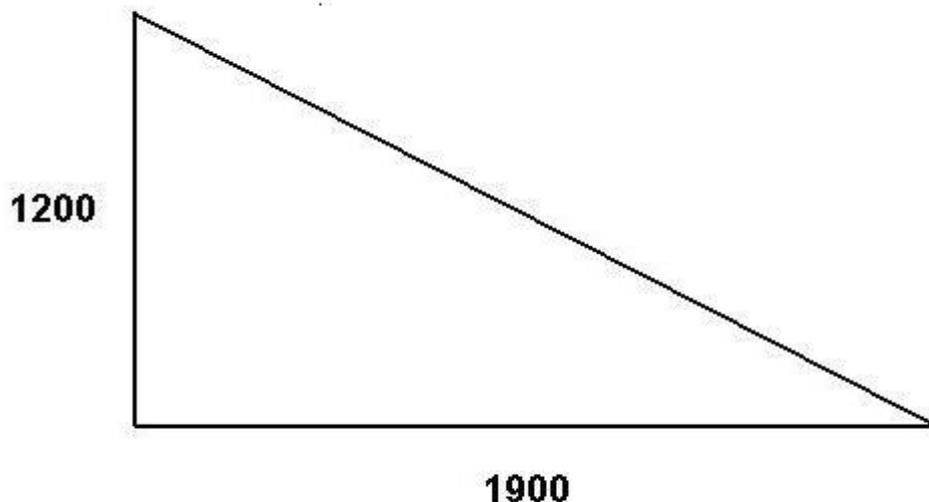
We would round this down to 2.73 meters or up to 2.8 meters if we wanted to allow for waste and over runs.

If this were a tank or storage container, then we could express the volume in terms of litre capacity.

1 cubic meter can hold 1000 litres of fluid so if the shape above was a tank, it would have a capacity of 2731.25 litres.

2.6.3.5 Area of a Triangle

The area of a right angled triangle can be found by multiplying the two right angle sides (base and altitude) and then dividing by 2.



Therefore, for the triangle above, the area would be 1.2 meters multiplied by 1.9 meters divided by two.

$$(1.2 \times 1.9)/2 = 1.14\text{m}^2$$

2.6.3.6 Measuring Circles and Semicircles

The measurement of circles is sometimes required to determine the volume of round tank, concrete required in columns or piers and even in fancy paving or pathwork.

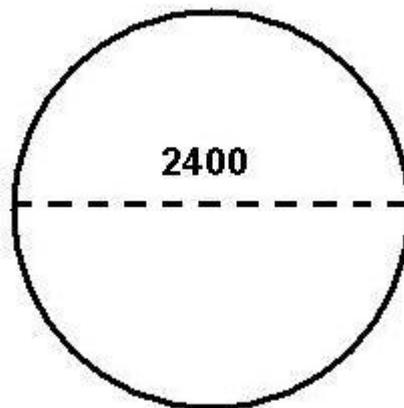
The first thing we need to consider is the use of the mathematical constant pi (π)

Pi is equal to 22 divided by 7 or rounded to 3.1416.

To determine a the area of a circle we use the formula $(\pi)r^2$

Where r is the radius or half the diameter of the circle

To determine the circumference of a circle we use the formula $2\pi r$
Pi multiplied by two times the radius of the circle.



For the circle above, calculate the area and the circumference:

$AREA = \text{Pi (3.1416) multiplied by the square of the radius (1.2)}^2$

= 3.14.16 X 1.44

= 4.53 m²

PERIMETER = 2 multiplied by 3.1416 multiplied by 1.2

= 2 X 3.1416 X 1.2

= 7.54 meters

Here are some handy quantities and costings you should know –

When ordering building materials or standard components you should think in 300mm increments. To explain what is meant by this –

Standard windows are 600mm – 900mm – 1200mm – 1500mm – 1800mm. This applies to height and width.

Ordering windows outside these parameters will cost a lot more money.

Timber comes in lengths of 900mm – 1200mm – 1500mm – 1800mm – 2400mm and 2700mm up to 5.4 meters.

Timbers in section can vary, i.e. 90 x 35mm – 70 x 35mm – 100 x 50mm. You will need to read the sectional sizes from your plan.

When cutting timber on site it is a good idea to spray the cut end/s with a termite resistant spray and also to paint the end with a primer to resist rot and splitting.

How many decking boards will you need if the deck is 10 metres long and 5 metres wide?

If the boards are each 80mm x 19mm in section, that's 10M or 10,000mm divided by 80.

Let's do the exercise! Using your calculator, that equals 125 boards @ 5.1M.

You will notice that I did not allow for shrinkage.

However, if you wish to deduct say 2 @ 5.1M, that's up to you.

Bricks:

Bricks are normally purchased per 1,000.

A standard face brick or common brick measures 110 x 75 x 230 which constitutes around 52 bricks per M².

Calculate that your wall in square meters;

Say - 2.5M high and 15M in length.

Therefore

$$15 \times 2.5 = 37.5\text{M}_2 \times 52 \text{ bricks per M}_2 = 1,950 \text{ bricks.}$$

You may have a sliding door in the wall which measures 2100 x 2400.

You can deduct this from your brick total.

Let's do it!

$$2.1 \times 2.4 = 5.04$$

Deduct this from our total wall M₂

37.5M₂ (as above)

Say, minus

5.00M₂

32.5M₂

So, 32.5M₂ X 52 bricks per M₂ = 1,690 bricks or say 1,700 bricks to construct that one wall.

Tip:

Calculate your total number of bricks for all walls. Allow for some wastage, say 5%.

When you establish your total, 'phone the brick company and check their pallet quantity loading and order the correct number of pallets.

Remember – bricks and finishes can vary from company to company, for example Quick Brick or Ezy Brick might be double the size of a standard brick.

Therefore you would only need 26 bricks per M₂. Don't forget to allow for wastage.

Concrete blocks (200 Series, i.e. 200 x 200 x 400):

It takes 12.5 blocks per M₂ and costs around \$3.00 per block.

Cost for laying is approximately the same, i.e. \$3.00 per block.

When a bricklayer gives you a price it could be calculated either per 1,000 laid or it might be a price per brick or block.

Ensure you listen closely to, and/or read carefully, his/her quotation.

Normally the sand and cement for the mortar is included in the labour price – however check this.

Don't forget that extras may occur – eg. sill bricks to doors and windows, cut bricks to bay windows, raked joints, ironed joints, flush joints, coloured mortar, scaffolding, lintels, frame ties, corbels, face finishes.

These can all add to the basic costs – check with your bricklayer.

Establish just what is and what is not included in his/her quotation.

Concrete:

If you are not an experienced concreter and you don't have the tools/equipment, don't even think of doing your own concrete.

Small garden shed slabs, pathways, pool pump plinths are fine for you to tackle (maybe), but remember – what looks easy is often not.

As well as the importance of the correct preparation, skill in placing and timing is critical when pouring a house slab.

My advice would be “**simply, don't do it!!**”

Normally concrete has a consistency of 4:2:1 ratio, i.e.

4 parts stone
2 parts sand
1 part cement

It must not be dropped higher than 1M or the constituents of the mix will separate and lose its strength which is generally 20 to 25mpa.

It normally has what is called an 80mm slump, which is the viscosity of the pour.

Do not add water or it will lose its strength, and if random tested by the testing laboratory of C.S.R.I.O. (rare but not unheard of) you would be told to pull the slab out and do it all again. And that could break the bank.

Concrete calculation –

$$\text{Slab} - M_3 = L \times B \times H = M_3$$

$$20 \times 12 \times .100 = 24M_3$$

$$\text{Footing} - M_3 = L \times B \times H = M_3$$

$$2 \times 20 + 2 \times 12 = 54 \text{ linear metres (perimeter of building)}$$

Now, take depth and width of footings, say 400mm x 500mm x linear metre.

$$\text{Eg. Cubic metres} \quad 54 \text{ linear metres} \times .4 \times .5 = 10.8M_3$$

It is better to order a little more than not have enough, particularly in an afternoon pour.

Your preparation and sand leveling is critical.

Don't forget your under slab drainage, pest barrier treatments and membrane.

ORGANISE YOUR STEEL INSPECTION BEFORE YOU POUR.

Roofing:

Like so many things, it looks simple but there are obvious correct procedures and practices.

For estimating purposes in an uncomplicated roof design, eg. a flat, skillion or gable roof you need to establish the correct length, i.e. measure from the ridge or apex, down the length of rafters and allow 40mm – 50mm into the guttering.

If you know the length (as above) it is simple to find out how many sheets you require. Simply divide the length of the roof frame, gable to gable, and divide it by 762mm. This is the effective cover per sheet of standard Custom Orb.

So, if the roof length measures 22M, that's 22,000mm divided by 762 which equals 28.87 sheets – say 29 sheets x whatever your previous length of rafter and gutter overhang was.

How many screws or fixings will you need?

Allow around 12 fixings per M² (slight over-kill).

Let's look at an example gable roof –

22M long x 5.1M measured along length of rafter

22M = 29 sheets @ 5.140 x 2 (2 sides)

= 58 @ 5.140

Colorbond “Dune” – plus fixings

Calculation **22 x 2 x 5.140 = 226.16M²**

Allow 12 fixings per M² **226 x 12 = 2714 fixing**

Don't forget to allow for your insulation blanket – 50mm Anticon at around \$6.00 per metre, laid.

Listed below are supplementary weatherings that you may need to complete your roofing –

Ridge capping	Valleys
Gutter	Fascia
Apron flashing	Barge capping
Down pipes	Outlets
Brackets	

The units of measurements used for these will be lineal meters with the exception of outlets and brackets which would be 'each'.

2.6.4 Window and Door Schedules

The Window and Door Schedule is provided to allow for easy reference during estimating and tendering phases, it can also form the basis of an acceptance document on delivery.

It is a simple form, laid out to allow easy data entry direct from the plans and specifications.

In an earlier section, we discussed the conventions for nominating door and windows in respect to:

- Location
- Size
- Configuration

Make certain these conventions are followed and that the doors and windows quoted on and ultimately delivered, are as per you expectations and the information on the plans and specifications.

Special windows configurations may require additional explanatory notes, take care and discuss your needs with prospective suppliers.



OBS Windows & Doors Schedule

Owner: _____		Phone: _____		Fax: _____							
Supplier: _____		Phone: _____		Fax: _____							
Contact: _____		Site: _____									
Please supply your quotation for supply of the following items											
Window/ Door No.	Size		Code	Location	Finish	Glass	Screens	Reveal Size	Reveal Material	Type Construction Frame size	Cost
	H	L									
0	1800	2400	X O O Q	Living	Alum Paint	Clear	Security	144	R/Pine	Brick Ven. 90X35T	XXX

2.6.5 Estimating Sheets

Estimating or collection sheets are used to gather information on the components involved in the building process.

They are identified by trade or service and are formatted to provide the organised collection and entry of data.

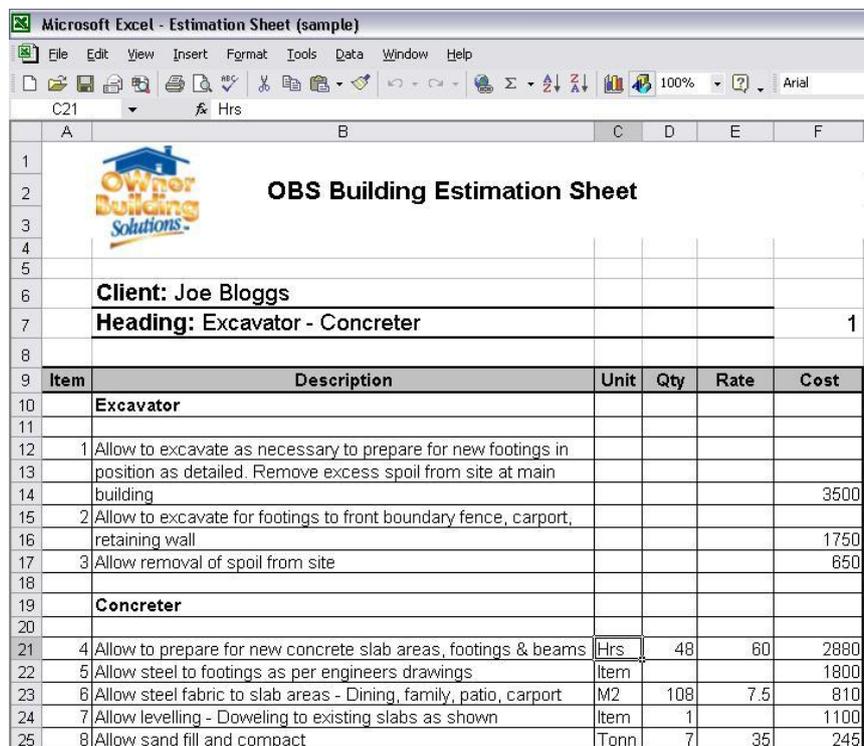
In their simplest form they are static with calculation being completed manually.

Automated spreadsheets collection sheets have been developed and form part of some of the sophisticated estimating software packages that are available and in use by some professional quantity surveyors.

These automated systems recognise building product and or element codes, drawing amounts and prices from associated databases and completing the calculations automatically.

As simple or sophisticated as the system may be they all follow the following basic layout as detailed below.

A tutorial is provided and accessible from the project management files you have downloaded..



Item	Description	Unit	Qty	Rate	Cost
Excavator					
1	Allow to excavate as necessary to prepare for new footings in position as detailed. Remove excess spoil from site at main building				3500
2	Allow to excavate for footings to front boundary fence, carport, retaining wall				1750
3	Allow removal of spoil from site				650
Concreter					
4	Allow to prepare for new concrete slab areas, footings & beams	Hrs	48	60	2880
5	Allow steel to footings as per engineers drawings	Item			1800
6	Allow steel fabric to slab areas - Dining, family, patio, carport	M2	108	7.5	810
7	Allow levelling - Doweling to existing slabs as shown	Item	1		1100
8	Allow sand fill and compact	Tonn	7	35	245

2.6.6 PC Items

PC Items are those fixtures which connect directly to a service such as water or electricity and include:

- Dishwasher
- Laundry Tubs
- Range Hoods
- Kitchen Sink
- Vanity Basins
- Toilet Suites
- Hot Water Service
- Cooktops
- Wall Oven

In some cases it may be advisable to include appliances like, microwave ovens and refrigerators.

Sending a complete list to your supplier may mean real savings in buying a 'house lot'.

Another consideration is the opportunity to install appliances and PC's built by one manufacturer, rather than mix and match.

Whilst shopping around on individual items may save you some money, walking into a kitchen that is fitted with a common manufacturer of all appliances can certainly give the impression of a quality job.

Use the checklist provided to ensure you allow for all PC's as required, and identify any special design impacts that your chosen fixtures may cause such as water at the refrigerator or additional spacing between overhead cupboards at the cooktop to accommodate the extra large range hood you have specified.



Prime Cost Items – Checklist

1

Item	QTY	Description	Rate	Cost
Toilet suite				
Double flap seat				
Vanity basin				
Wall hung basin				
Shower compartment				
Shower screens				
Bath				
Kitchen sink				
Wash tub				
Spa unit				
Bar sink				
Kitchen cupboards				
Laundry cupboards				
Door hardware				

2.7 PROFESSIONAL SERVICES

2.7.1 Engaging Consultants

Engaging consultants can be a daunting task.

How do you know who to choose?

In this section we will identify the professional services typically used during the construction of a domestic dwelling, and provide a few tips on how to select the right one and the best way to secure their services at a realistic price.

Consultants you will most likely need to use during the construction of your dwelling will include:



- Architects/Building Designer
- Geotechnical Engineer
- Mechanical/Structural Engineer
- Hydraulic Engineer
- Building Certifier
- Surveyor

We will consider the roles of each of these professionals, later in this manual.

Selecting a suitable provider of these services will normally be as the result of some research on the part of the owner builder.

These professionals may be found from -

- Trade Journals
- Yellow Pages/Internet Advertising
- Personal referrals

- Relevant Professional Association

or any one of a number of sources.

What is important, is that you satisfy yourself that their experience and expertise is both recent and relevant to the type of project for which they are being engaged.

Equally as important is their work ethic. It is imperative that you establish a contractor's work ethic, in particular should you choose to engage them on an hourly rate.

Note: Abacus Training would never advise employing any professional or trade contractor on an hourly basis.

Ask to see evidence of their work – ask to speak to previous clients or for personal referees.

Ensure also, that they carry the appropriate insurances, including professional indemnity.

As you would do for any trade service you are considering, try to always get three quotations or schedules of fees and make sure you understand exactly what services they are offering and the level of support that will be available throughout the project.

Read each offer carefully and make certain you are comparing apples with apples.

It will often be necessary to schedule one or more meetings with your chosen consultants, to ensure they fully understand and consider the specific aspects of your project.

The proforma Invitation to Offer Professional Services is included in the design and planning folder of the file structure:

2.7.2 Architects and Designers

Once the site contours are completed and you have settled on a rough draft for the dwelling, it will be necessary to engage the services of a licensed building designer or an architect to complete preliminary design drawings.



These drawings will provide the basis for engineering drawings to be completed and in most cases, should require little alteration for use as working drawings for council submission and/or private certification and should ensure an accurate presentation of the project for use in the tendering process.

Architect fees will vary considerably, and you will potentially cost yourself a lot of money if you do not choose wisely.

As for all consultants, identify an architect or designer who know has a proven record in the type of construction you are proposing to build.

Check their current works in progress and satisfy yourself that they understand your requirements and that generally, their works normally include projects of similar size and budget to your own.

Don't pay for a Rolls Royce or a Bentley, when a Commodore or Falcon will do the job just fine.

On your first visit to the designer, be prepared, provide photos of homes similar in style to what you are trying to achieve, build up a portfolio of ideas, designs and sketches of the following:

- External facades, looks, colours and finishes
- Internal finishes and colours
- Selected or preferred PC Items, fixture, fittings and fitments
- Sketches or photos of any special features or areas you wish to incorporate into the design
- Your Budget

As for all things, the better prepared you are and the more clearly you can transfer your ideas and thoughts, the easier it will be to produce a finished concept, layout and design.

The approved plans for the construction of a house, constitute a legal document, they are integral to the contracts drawn up between yourself and the trades or suppliers, they must be accurate, and provide sufficient detail to allow for estimating and construction purposes.

Note:

In general, unless you agree in writing, the copyright of the completed design will belong to the designer.

2.7.3 Building Certifiers

Before you obtain an owner builder licence you will need to get development approval, if required, and appoint a certifier to issue building approval.

You will need to complete Form C3, appointing a Certifier to act on your behalf and issue the building approval.

Once appointed your certifier is responsible to assess your building application and plans for compliance with the *Building Act 2004* and Building Code of Australia and issue the building approval.

Several inspections are needed for building work.

During construction, your building certifier has inspections to make at the completion of each of the following stages:

- completion of excavation, placement of formwork and placement of steel reinforcing for the footings before any concrete for the footings is poured;
- completion of the structural framework and, for a class 1 or class 10 building (for example, a house and garage) before the placement of any internal lining;
- for a class 1 or 10 building (for example, a house and garage) completion of placement of formwork, and placement of steel reinforcing, for any reinforced concrete member before any concrete for the member is poured;
- for a building other than a class 1 or class 10 building completion of any reinforced concrete member before any concrete for the member is poured, stated by the building certifier in the relevant building approval; and
- completion of the building work approved in the relevant building approval.

An extra inspection will be made during construction for two-storey homes before the second-storey slab is poured.

2.7.4 Surveyors

The surveyor is an extremely important provider of information which will allow you to best design a home that suits your needs and the constraints of the block.

The surveyor will provide services including:

- Boundary identification and marking
- Location of easements
- Determination of contours
- Site and dwelling set out

A mistake in accurately establishing boundaries, or setting out the construction, could prove extremely expensive, a good surveyor is worth their weight in gold.

Following is an extract from a typical specification for a domestic dwelling in respect to survey works:

The Surveyor shall properly set out all work to the Owner's approval and check the dimensions shown on drawings against such setting out.

The Owner shall be responsible for the accuracy of all levels.

Sub and separate Contractors must obtain all levels from the Owner.

The Owner shall co-ordinate the comprehensive setting out of the works generally in an accurate manner and within tolerances where specified.

Any discrepancy between the dimensions shown on the drawings and existing physical features shall be immediately brought to the Owner's attention and no further work carried out until the Owner's instructions are received.

2.7.5 Structural Engineers

In most domestic dwellings, the use of a structural engineer will be minimal. Having said that, private certifiers tend to rely on the engineer's design input in any area that is not covered by the standard building span tables.

For example, it is likely the building designer will be acceptable to the certifier for the determination of wind loadings and tie downs, design of bracing walls and structural beams over standard windows and door heads.

However, the carriage of trusses over a large opening such as a double garage door or similar may require the design to be certified by an engineer.

Where a dwelling is designed and is to be constructed utilising structural glass, suspended concrete floors, cantilevered sections etc., the design expertise of the structural engineer becomes increasingly important.

It will be important to work closely with your nominated building designer to ensure the use of a structural engineer is achieved effectively.

2.7.6 Geotechnical Engineers

You will need to engage a Geotechnical Engineer to determine the type of soil which will form the founding material for your structure.

This is achieved by drilling several bore holes under the area of the site where the proposed structure is to be erected, giving a representative sample of the subsoil qualities and the bearing capability of the ground.

In addition, the waste water management consultant may require soil testing to determine the absorption capability of the ground where effluent discharge is required.

The removed 'core samples' are examined and the site is classified based on the results of the examination.

Using this information, and based on the preliminary design drawings, the footing system for the dwelling can now be designed.

Just as the site contours can affect the cost of the ground works, so too can the site classification of the founding material.

Several new techniques and footing systems, including screw piles, are more commonly being used in domestic construction on problem sites, so you need to ensure that the engineer considers all possibilities to achieve the most appropriate and cost effective design for your project.

2.7.7 Hydraulic Engineers

In the Australian Capital Territory, it is a requirement to provide certified plumbing and drainage plans with your construction drawings submitted during the application for a building approval.

These plans may only be a person holding the following qualifications:

Either:

- Registration with the Institution of Engineers, Australia on the National Professional Engineers Register in the area of practice of “building services” and a Statement of Competency in Hydraulic Systems from the Institute of Engineers Australia; or
- Sanitary plumbers licence
- Advanced sanitary drainers licence
- Evidence of completion of the Backflow Prevention Course offered by the Canberra Institute of Technology or an equivalent course; and
- Three years experience as a sanitary plumber or advanced sanitary drainer after the grant of the licences referred two in the first two dot points.



As domestic dwellings become more complex and incorporate high tech fittings and fixtures, the use of building services engineers and hydraulic engineers is becoming more the norm.

Whilst their roles are varied, basically a mechanical engineer would be engaged to design high end air conditioning systems and the hydraulic engineer (consultant) would be used to design for complex roof drainage, high pressure areas, grey water usage, retention tanks, reticulation systems, irrigation, circulatory systems, water features etc.

2.7.8 Consultant Register

To maintain consistency in information, we suggest you include all consultant details in the Project Participant Register.

Keep a hard copy of these details in the front of your Project Diary as quick reference for contractor, consultant and supplier details.

If you are used to using a palm pilot, personal digital assistant or electronic organiser, you may wish to transfer abbreviated contact details into one of these devices.

The completed register must include contact information, license or registration numbers as applicable and insurance details.

2.8 TENDERING

2.8.1 Tendering Process

The tendering process is one area where you can really make or save money.

Many trades people and suppliers are reluctant to work for owner builders for a variety of reasons.

This is overcome by establishing a professional relationship and demonstrating your capacity to manage the project.

Being prepared, well informed and demonstrating a thorough understanding of your project will not only get good contractors on side, but also send a warning that you are not an easy mark.

The tendering process is where the true discipline and astute purchasing can make all the difference between a project that struggles to meet budgets and one that allows you the freedom to select better fittings, fixtures or fitments and still meet the financial targets you have set.

Managing this part of your project certainly requires commitment, but these basic rules are simple to follow and ensure success in achieving your budget estimates.

- Select the suppliers and contractor you wish to provide offers and quotations, based on recommendations, referrals or interviews which establish bona fides and an ability to complete the works to the required standard and specification.
- Select a minimum of three contractors or suppliers to quote on your works.
- Schedule sufficient time for the tendering process to ensure a minimum of three offers can be obtained for each supply of trade contract.
- Understand your specifications and schedule of finishes, and examine each offer or quotation carefully to ensure:
 - Each offer or quotation complies and meets the requirements of the specification

- Satisfy yourself you are comparing apples with apples

The tendering process if conducted properly will involve photocopying multiple sets of plans and specifications for the individual contracts.

This could involve up to 50 sets of drawings distributed to your selected or nominated contractors.

Typically this would involve:

- Identifying the trades and or materials/PC Items that are required
- Select a minimum of three suppliers and or contractors
- Prepare tender documents including:
 - Invitation to Tender
 - Working Drawings
 - Specifications or Detailed Scopes of Work
 - Schedules of Finishes

If you think this will be easy, it is not!

Typically you will need to chase and chase and chase relentlessly, contractors and suppliers to provide their offers.

As difficult as this may seem, it is the heart of making your project work.

If you can truly get this right, the rest is relatively easy.

You will need to hound and press and chase all your contractors to get all three quotes.

If you end up with only two, select an alternative and chase them.

Do not settle for less than three relevant and realistic quotations.

Be aware, when things are good in the building industry, many contractors will provide “high ball” quotations that indicate they will only take on the project at a premium.

2.8.2 Plans and Specifications

Plans and specifications are the normal means by which we transmit information to those completing our works.

The more detailed and inclusive the plans and specifications, the easier it is for the contractors to understand the finishes and structural components of the project.

We have already discussed how to read and interpret plans in a previous section.

Plans need to be detailed and accurate as appropriate and include required information in respect to specifications.

Some project drawings are supported with a detailed written specification that identifies all finishes, standards, codes and systems to be employed in the construction of the dwelling.

The full text sample specification is provided and accessible from the resources download page on the website.

2.8.3 Tendering Schedule

The Tendering Schedule is used for the collection and comparison of received offers.

The Contractor details are included and acceptance of tender is noted.

The final column allows for the entry of received quotation amount against the budget estimate.

The completion of this information gives a good understanding of the budget position of the project prior to commencement.

An area of large discrepancy in this column may need a reassessment of the quotations and possibly a review of your expectations in respect to fittings, fitments, fixtures for the particular trade.

A tutorial demonstrating the use of the Tendering Schedule is available from the resources download page on the website.

Client Name:
Address:
Phone:
Fax:
Mobile:



Job No.
Lot No.
RP No.
Council:
Address:

Trade/Profession or Statutory Authority	Budget	Tender 1	Cost	Tender 2	Cost	Tender 3	Cost	Phone Number	Accepted Tender	Cost	Difference
Architect/House Designer										\$	-
Surveyor										\$	-
Engineer										\$	-
Geotechnical										\$	-
Council										\$	-
Road Openings										\$	-
Building Authority										\$	-
Insurance										\$	-
Site Amenities										\$	-
Signage										\$	-
OBS Fees										\$	-
Excavator										\$	-
Structural Steel										\$	-
Plumber & Drainer										\$	-
Electrician										\$	-
Concrete Former										\$	-
Steel Fixer										\$	-
Termite Protection										\$	-
Carpenter										\$	-
Steel Frame										\$	-
Bricklayer										\$	-
Window Glazier										\$	-
Roof Plumber										\$	-
Roof Tiler										\$	-
Linings Walls/Ceilings										\$	-
Renderer										\$	-
Floor/Wall Tiler										\$	-
Joinery										\$	-
PC Items (Prime Cost)										\$	-
Painting										\$	-
Carpet										\$	-
Telephone Connection										\$	-
Security System/Intercom										\$	-
Cable Television/Internet										\$	-
Landscaping										\$	-
Fencing										\$	-
Swimming Pool										\$	-
Fireplace										\$	-
Frame Supply Timber/Steel										\$	-
Totals:	\$	-								\$	-

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2.8.4 Letters of Acceptance

The following format is a suggested formal advice to contractors of their successful offer.

It is likely you will have been in negotiation via phone or facsimile prior to the issuance of this correspondence, but it is important in terms of record keeping and the completed acceptance should be retained in the associated trade contractors file.



Quotation Acceptance Form

Acceptance of Quotation	
TO:	
TYPE OF WORKS	
Principal Contractor	Owner Builder Permit Number
Name of Owner/s:	
Address:	

2.8.5 Unsuccessful Tenderers

Do not neglect to send notification to all unsuccessful tenderers.

It takes considerable time to develop and submit an offer.

Show that you appreciate their efforts, and if you feel so inclined, detail your reasons for selecting another bid.

You never know, this may just stand you in good stead if you are let down for whatever reason by the chosen contractor.

The notification need only be brief, but must identify project details and any drawing or specifications that were provided during the tender.

2.9 CONTRACT ADMINISTRATION

2.9.1 Overview

The administration of the contract will ultimately determine the level of success you achieve in the construction of your project.

Careful planning and following the directions provided in this manual and the Abacus Training Project Management System will go a long way to realizing great savings and satisfaction.

You need to be above all, disciplined in the organisation and administration of your project.

The forms and instructions included in this next section, provide simple, well constructed tools to establish accurate records for your project.

The file structure suggested and included on the disk is a system that has worked for us in the past, and can be used on a project of any size or monetary value.

It provides easy access and recall of all records and project information.

The old adage **“information is power”**, was never more true than when running a construction project.

Each of the forms included in the system is described in this manual.

You can refer back to the instructions for use at any time if you need to reacquaint yourself with the principles and use of the form.

Following are screen shots of the forms included on the disk relevant to Site Administration.

The associated text provides a brief outline of the function and use of the form or letter.

2.9.2 Site Instructions

As we always try to impress upon our students, all instructions given to trade contractors or suppliers must be in writing, agreed to and signed by both parties.

Ensuring this is done, will reduce the possibility of dispute and miscommunication.

The instructions should be numbered, clearly identify the instructions, signed by both parties and recorded in the site diary, a register of site instructions or simply placed in the appropriate trade contractors file.

Where the site instruction constitutes a variation to the contract, the appropriate variation documentation should be included and similarly recorded.

2.9.3 Site Diary

This is an area where even the experts disagree.

Not in respect of the importance of maintaining an accurate site diary (this is a given) but there are differing opinions of the best format.

Both methods require the owner builder to establish a consistent record of day to day activities on the site.

One is based on a computer form which is completed and retained either in an electronic or hard copy format (preferably both), the other is the use of a Collins or similar A4 sized bound diary which displays one page to a day.

Which ever format you use, make certain you record the following information as a minimum:

- Brief outline of the days activities (point form is adequate)
- Any site problems occurrences or disputes
- The issue of site instructions or variations
- Any delays including:
 - Weather
 - Materials
 - No show of tradespersons or contractors
- Record of all phone calls and any correspondence sent or received
- Any other significant site activity

Remember, a well constructed and maintained diary will be considered a legal document in the event of dispute.

Keeping a well organised, complete and accurate site diary is a great start in ensuring your project runs smoothly, on time and on budget.

2.9.4 Progress Claims

Timing of progress claims will normally be detailed in the contract and agreed to prior to signing or engaging any contractor or supplier.

The progress payments will generally be identified as a percentage of works completed or a stage of construction such as:

- Slab poured
- Frame stood
- Roof on
- Lock Up

You should use the information collated from all contracts, together with your construction schedule and determine a rough cash flow for the project.

This will assist you in transferring funds at appropriate times or organising loan draw downs in time to meet cash demands.

Before making a payment, you need to consider:

- Is the claim for payment consistent with the works completed and the agreed terms of the contract?
- Is the work completed to a satisfactory standard?
- Is there a certification or inspection required for the completed works?
- Is there any retention amount allowed for or specified in the contract?

The following screen shot illustrates a portion of the Progress Claim Proforma included in the Project Management System, it has been produced to include all information as required by industry standards.



Progress Claims Payment



TAX INVOICE

Date:		Stage completed:	
Owner:		Building Contractor:	
Address:		ABN:	
ABN (if applicable):			
Site Address:			
CLAIM		(\$)	
Stage Claim			
Variation/adjustment No.1			
Variation/adjustment No.2			
Variation/adjustment No.3			
Variation/adjustment No.4			
Sub Total			
TOTAL CLAIM			
GST in this claim is \$			
In accordance with the contract this claim is due to be paid by:			
Failure to pay the total claim will entitle the building contractor to default interest.			
STATEMENT		(\$)	
Total claims to date			
Total variations to date			
Other amounts due (default interest)			
Balance claimed and payable			
Less Total payments received			
AMOUNT OUTSTANDING			
PRACTICAL COMPLETION NOTICE			
The building contractor claims that the works reached practical completion on			
(if nothing stated then the due date of this claim).			
Note: For certain work the practical completion claims is not due until the defects document is completed.			
Signed by the building contractor:			
THE TOTAL CLAIM IS GST INCLUSIVE			

OWNER'S COPY

Owner Builder Progress Claims Payment - Form OBPCP001 1

Retentions if applicable should:

- Not be of an amount that exceeds 10% of any one progress claim
- Once practical completion is achieved, the total retention should not exceed 2.5% of the total contract value
- Retention amounts should be held for a maximum of 6 months as a defects liability protection.

To make certain your records are complete and easily followed:

- Do not pay by cash
- Pay by cheque or money order only
- Only pay upon receipt of a Tax Invoice which includes an ABN if applicable

2.9.5 Variations

The following extract is of the Variation Document included in the Project Management Disk and available on the website.

The Variation Document must:

- Be numbered and recorded against the relevant trade contract
- Indicate who requested the variation to the contract
- Identify the Owner Builder and the Site details
- Detail the Extent of Works covered by the variation
- Include changes to the contract price including a breakdown of the costs involved
- If more than one variation is included on the document, each item shall be initialled
- The variation document must be signed by the contracted parties (the owner builder and the contractor or supplier)



Variation Document



No:		Requested by owner / building contractor (<i>delete one</i>)			
Owner:					
Address:		Building Contractor:			
		ABN:			
Site Address:					
DETAILS OF VARIATIONS					
No.	Details of work	Unit price	Price (credit or debit)	When payable	Initial by owner
		TOTAL			
		Plus GST (10%)			
		TOTAL PRICE			
Notes:					
<ul style="list-style-type: none"> • If a price for variation is not stated, the price will be worked out in accordance with the contract. • If the time for payment is not stated, the price for the variation is payable when the work on the variation starts. 					
If the variation will result in a delay, the estimated period of the delay isdays.					
Reason for variation (only where requested by the building contractor)					
The owner agrees to the variation of the works as detailed above.					
Signed by the owner:				Date:	
Signed by the building contractor:				Date:	
Note: the building contractor must give this document to the owner within 5 days of the variation being agreed.					
THIS IS NOT A TAX INVOICE					

OWNER'S COPY

2.9.6 Cash Book

The cash book and your site diary are arguably the most important records you will keep in respect of the project.

The cash book is divided up into several columns, each identifying the details of all transactions and disbursements made during the construction of the project.

The following extract shows the layout of the .xls spreadsheet solution provided in the Project Management System.

It has been “dumbed down” to allow manual entry and calculations.

A more sophisticated solutions includes the required formulae to make the spreadsheet “automatic”

A video screen presentation detailing the use of the cashbook can be found in the following file on the disk:

Cashbook.wmv

Abacus CASHBOOKS (Sample)													
Cash Payments													
Date	Particulars	Cheque No.	Amount	Fees	Provisional	Wages	Phone	Sub-Contract	Equipment	Materials	Sundry	Total	Remaining
1	O'Claffey Driest	0001	\$1,000.00		\$1,000.00							\$1,000.00	\$1,000.00
2	Sell Text Australia	0002	\$300.00		\$200.00							\$300.00	\$1,300.00
2	J'Quack Engineering	0003	\$550.00		\$550.00							\$550.00	\$1,850.00
4	O'Claffey Driest	0004	\$700.00		\$200.00							\$700.00	\$2,550.00
4	Basky Burnz Quatifier	0005	\$900.00	\$10.00	\$290.00							\$900.00	\$2,450.00
5	Patty Cash Float	0006	\$100.00								\$100.00	\$100.00	\$2,550.00
5	Signatures	0007	\$40.00							\$40.00		\$40.00	\$2,590.00
10	Sammarville Surveyors	0008	\$375.00		\$375.00							\$375.00	\$2,965.00
12	Byeratt Excavators	0009	\$1,450.00						\$1,450.00			\$1,450.00	\$4,415.00
12	Byeratt Hiplin Lear	0010	\$20.00							\$20.00		\$20.00	\$4,435.00
14	Finnex Plumbing	0011	\$1,200.00					\$1,200.00				\$1,200.00	\$5,635.00
15	Bill Smith	0012	\$100.00			\$100.00						\$100.00	\$5,935.00
15	Patty Cash	0013	\$100.00								\$100.00	\$100.00	\$7,035.00
17	IBM Concrete	0014	\$12,500.00					\$12,500.00				\$12,500.00	\$19,535.00
18	ABC Bristle	0015	\$11,200.00							\$11,200.00		\$11,200.00	\$30,735.00
Sub Total			*****	\$510.00	\$2,215.00	\$100.00	\$0.00	\$13,700.00	\$1,450.00	*****	\$410.00	*****	

Cash Receipts			
1	Cash		\$2,000.00
1	St George Bank		\$5,000.00
10	St George Bank		\$15,000.00
15	Australian Credit Union		\$20,000.00
Sub Total			
Balance			

Patty Cash			
5	Float Draun chq #0006		\$100.00
3	Partage		\$25.00
4	Bridge Toll		\$4.00
7	Hardware		\$12.00
7	Stationary		\$11.00
Sub Total			
Balance			

Our cash book solution includes a petty cash book on the same sheet, this helps retain all financial record in a common location.

Additionally you must retain:

- Cheque Butts
- Sales Invoices
- Petty Cash Dockets and Receipts
- Bank Statements
- Progress Claims
- Progress Payment Details

2.9.7 Trade Contracts

Trade contracts are required under the various state and territory Building Acts and the details to be provided therein are specified by legislation.

The Department of Fair Trading, HIA and the Master Builders each have plain English contracts to cover most types of work available free of charge as a download from their site or for purchase at their customer service centres.

You will note that one of the items included requires you as the owner-builder to have signed to acknowledge you have read and understood the Consumer Building Guide.

Following is an extract from the *“Guide to Building and Renovating Your Home”* which details contract inclusions and requirements together with suggested schedule of payments. (progress payments and deposits)

Once you have decided on a builder you need to engage the builder using a written contract. This stage of the building process can be very confusing and it is easy to feel intimidated into accepting things you don't feel comfortable with.

Contract details

The contract must:

- ⌚ Be signed and dated by you and your builder
- ⌚ Contain your name and your builder's name

- ⌚ Have the address where the work is to be carried out
- ⌚ Contain the builder's licence details
- ⌚ State the start and completion dates
- ⌚ State the payment arrangements
- ⌚ Have the plans and specifications attached
- ⌚ Contain the statutory warranties
- ⌚ Display the total contract price

Make sure that the work that has been agreed to is stated fully in the contract. This will help prevent any misunderstandings and minimise the risk of potential disputes between you and your builder. Industry associations such as the MBA and the HIA have developed contracts that can be used in the ACT, as has the NSW Department of Fair Trading.

Variations to the contract

Any variations to the contract should be in writing, signed by you and your builder, and attached to the contract. Variations can occur for a number of reasons. For example, there may be variations to the completion date due to unforeseen circumstances such as bad weather, unforeseen excavation or delay in the supply of materials.

Variations to PC items (see above) or to the work being done will cause a change to the final price. Any factors that could affect the total contract price should be detailed in the contract. If you change your mind about any aspect of the building you are strongly advised to detail the changes in writing. It can be very costly to make small changes during construction.

Payment Arrangements

The contract should detail when payment is required and at what stage of the work. Payment arrangements vary, but a normal payment structure could be as follows:

Stage of work Max % of Total Contract Price

1. On signing of contract 5%
2. Completion of base stage 10%
3. Completion to frame stage 15%
4. Completion to lock-up stage 35%
5. Completion to pre-paint stage 20%
6. Completion of all building work 15%

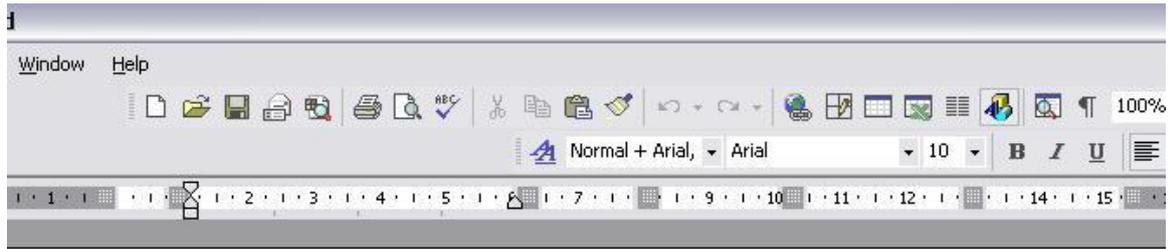
It is recommended that you pay no more than \$10,000 on signing of the contract as indemnity insurance only covers deposits up to \$10,000. For smaller jobs (small extensions or garages) where the total contract value is between \$3,000 and \$25,000, a schedule providing for an initial deposit of up to 10 per cent may be considered reasonable. It is up to you to negotiate and reach agreement with the builder regarding the amount and timing of any subsequent progress payments. The initial deposit or 'prepayment' is a token of your good faith and you may lose it if you don't proceed with the work, but it need not be excessive. It is important that you NEVER pay for a stage of work before it is completed as this may expose you to financial risk if the builder goes broke,

2.9.8 Preliminaries Checklist

Preliminaries form an important part of the project, not only from an organisational aspect, but also as a monetary consideration.

The provided Preliminaries Checklist, provide a detailed form for ensuring that all the general considerations for a typical domestic construction project are completed and documented.

It will provide quick access to the amount spent on the preliminary stage of the construction and fiscal information to be included in your project budget.



PRELIMINARIES CHECKLIST					
No.	TASK PARTICULARS	DATE	PAYMENT	COMPLETION	COMMENTS
1	Select land				
2	Establish Project Bank Account				
3	Purchase land – complete searches				
4	Payment for <u>conveyancing</u>				
5	Obtain land title certificates				
6	Complete Owner Builders Course				
7	Prepare detailed budget for project				
8	Obtain finance approvals if applicable				
9	Design or select house plan and layout				

2.9.9 Certifications Checklist

It is important to keep all copies of any certifications that are issued in respect your construction.

These should be retained in the relevant trade contract file for future reference.

It is a good idea to establish a Certification Checklist as a quick reference of the inspections completed or certifications received.

Ideally this would be retained in the Project Master File (Hard Copy) or in the front of the Project Diary.

A proforma is included and accessible from the resources download page on the website.

2.9.10 File Structure

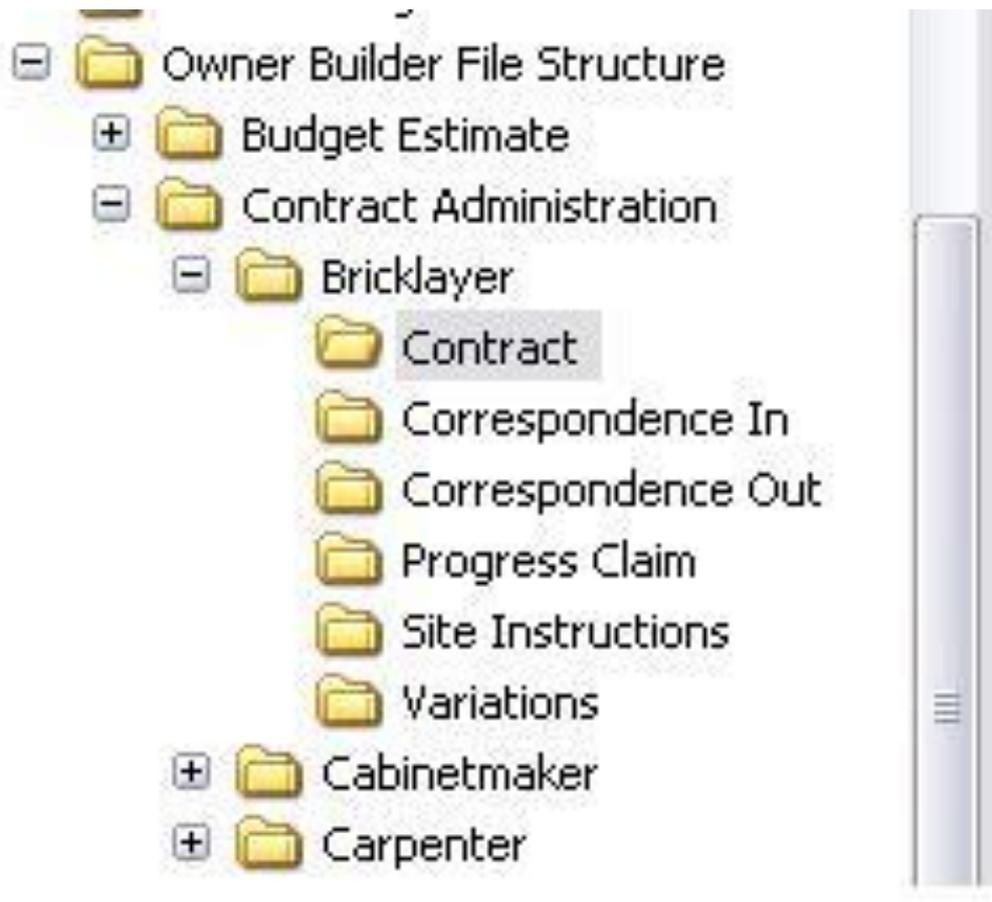
We have included a basic file structure that can be copied and pasted onto your computer and will form the basis of your electronic retention of financial and administrative records for your project.

The file structure is accessible from the resources download page on the website, and we have included a tutorial viewable in windows media player on the use and structure of the filing system.

Whilst it is generic, it is appropriate for most domestic construction projects.

Special or unique projects may need some modification to the system.

If you have any problems or questions, enter our web based forum and ask the questions of other Owner Builders or of the Owner Building Australia staff.



2.9.11 Registers

Registers are an important source of project information, particularly in respect to the contact information of various suppliers, contractors and consultants.

In addition to details on the contracted service providers, several other registers may need to be produced and retained separately to allow easy access to specific information including site safety induction etc.

These are handled and discussed in the relevant sections of this manual.

For each of the Project Participants below, the appropriate details as indicated should be included in the register.

The Screen Shot Tutorial access from the resources download page on the website provides further instruction on entering data into this register.

2.9.11.1 Suppliers

- Contact Details
- Insurance Details
- Tender Receipt
- Other Documentation
 - Safety Induction
 - Work Methods Statements
 - Comments

2.9.11.2 Contractors

- Contact Details
- Insurance Details
- Tender Receipt
- Other Documentation
 - Safety Induction
 - Work Methods Statements
 - Comments

2.9.11.3 Consultants

- Contact Details
- Insurance Details
- Tender Receipt
- Other Documentation
 - Safety Induction
 - Work Methods Statements
 - Comments

2.9.12.3 Project Participant Register

This important register provides you with a means of documenting and maintaining contact and professional details about all tradepersons, consultants and suppliers who are engaged on your project.

It should be your primary reference point for day to day contact with those persons contracted to provide you goods or services.

If you are working from hard copy files, it should be readily available at the front of your project diary or if possible hung on a wall in a prominent easily accessible location.

Of course, like all project documents it must be amended and kept up to date.

The screenshot shows an Excel spreadsheet titled "PROJECT PARTICIPANTS REGISTER". The spreadsheet is organized into two main sections, each starting with a header row (row 8 and row 15). Each section has a column for "Trade, Supplier, Profession" and a "Contact Details" section with sub-columns for Name, Company, Address, Phone, Work, Fax, Mobile, and Email. A logo for "Owner Building Solutions" is visible in the background, and the word "PROJECT" is partially visible in the top right corner of the spreadsheet area.

	A	B	C	D	E
1					
2					
3					
4					
5					
6					
7					
8	Trade, Supplier, Profession	Contact Details			
9		Name		Phone	
10		Company		Work	
11		Address		Fax	
12				Mobile	
13				Email	
14					
15	Trade, Supplier, Profession	Contact Details			
16		Name		Phone	
17		Company		Work	
18		Address		Fax	
19				Mobile	
20				Email	
21					

2.10 SCHEDULING

2.10.1 Sequence of Events

Most conventional building structures follow a similar sequence of events.

Differences occur in the type of construction, such as cavity brick, brick veneer, timber or steel frame with cladding.

Of course, unconventional types of construction such as straw, earth etc. face considerable differences.

In effect, if you adhere to our sample building schedule as contained herein, you will understand what comes next.

Notwithstanding, following is a chronological list for ease of reference –

1. Arrange services
2. Arrange contractors
3. Order materials
4. Clear and prepare site
5. Set out – surveyor
6. Temporary power
7. Water supply
8. Excavate for footings/stumps
9. Drainage under slab
10. Steel in footings/stumps
11. Inspection – steel/foundations
12. Concrete – pour footings
13. Brickwork – base course
14. Concrete – form and prepare
15. Membrane and steel/slab
16. Inspection
17. Pest Barriers
18. Concrete – pour slab
19. Carpenter – bearers/joists (if applicable)
20. Carpenter – floor sheeting (if applicable)
21. Pest barriers
22. Carpenter – wall frames
23. Carpenter – trusses/tie downs
24. Carpenter – Windows
25. Frame inspection
26. Plumber – roof, gutters/valleys
27. Plumber – hot and cold water rough in
28. Electrical – pre wire
29. Other services

30. Carpenter – frame wrap
31. Bricklayer – walls
32. Soffit linings
33. External drainage
34. Drainage inspection
35. Internal linings
36. Carpenter – joinery
37. Painter – first coat seal
38. Carpenter – fix out/ kitchen
39. Painter
40. Water proofing
41. Floor and wall tiler
42. Plumber – fix out
43. Electrician – fix out including (light fittings if available)
44. External pest barriers
45. Clean up – prepare site
46. Final inspection

Following on from the construction schedule which details the order of the project and the trades and services to be used, it is helpful for the Owner-Builder to have a basic knowledge of the function of each contractor employed on their site.

Note:

Remember, not any two projects will be the same, nor will environmental or other factors be always constant throughout two similar projects.

The following is provided as a guide and refers to a simple, typical construction using established building principles and systems.

Each project will be different and it will be your ability to recognise and adapt to these variations that will affect the outcome of your works.

The list of all construction techniques employed throughout the building and construction industry are wide ranging and varied and it would be impossible to cover all of them in the scope of this course.

In earlier sections we looked at the roles and duties or services provided by professionals such as architects, engineers and surveyors, we will now look at a basic job description of each of the trades.

We will amplify some of the trades in the sequence for clarity and to assist in developing a realistic construction schedule.

- **Arrange Services**

Arrange the temporary power supply and temporary water connections with the electrician and plumber respectively.

Organise and hire site toilet facilities and construction fencing as required.

This is a good time to talk to council about installation of the footpath or kerb crossings as necessary.

- **Arrange Sub Contractors**

At this time you should have completed your tendering process and the successful contractors would be in receipt of Quotation Acceptances and have signed the appropriate contracts with you.

Remember, during the tendering process you should have received and considered at least three quotations for each trade or service.

Your nominated contractor list should include:

- Excavator
- Electrician
- Plumber and Drainer
- Gasfitter
- Concretor
- Carpenter
- Bricklayer
- Waterproofer
- Plasterer (internal linings)
- Roofer
- Floor and Wall Tiler
- Floor Sander
- Painter
- Landscaper

Not all projects will require all the trades listed above and as you can see from our previously completed construction schedule, some projects may require the services of more specialised contractors.

The above list however is fairly representative of a standard contractor list used in the construction of a domestic dwelling.

As we discussed earlier, these tradespeople and suppliers will not be sitting around waiting for your call, so coordinate carefully with all your contractors and suppliers to give your project every chance of being completed on time and on budget.

Allow contingencies for wet weather and other unforeseen circumstances and build some flexibility into the program if at all possible.

Remember when things don't go exactly as planned, it is time to take stock, sit back re evaluate and reschedule as required.



- **Materials**

Working from your schedule, coordinate with the suppliers to make certain that PC's are in stock, hardware and other site consumables are delivered at the right time to minimise delays.

Some of the materials and hardware you will need to consider for delivery or availability on site are:

- Sand, Gravel and Fill
- Bricks
- General Hardware
- Concrete
- Timber
- Roofing
- Windows and Doors
- Tilt and or Roller Shutters and Doors
- Internal Linings
- Kitchen
- Wall Finishes
- Light Fittings
- All PC items

Obviously it is important to the flow and continuity of the works to have hardware, PC's etc and materials on site when the tradespersons require them.

Having all the materials on site too early though can cause some problems.

- Where do you store them so they are safe from theft and not in the way of people working on your site?
- Are they causing trip points or hazards to people engaged on the site?
- What effect will it have on the cash flow of the project to pre buy everything and have them sit on site awaiting installation?

Some contractors may wish to provide a supply and fit contract. This is normal and quite acceptable. However make sure you are not paying too much for the ease of having everything supplied or included.

- **Clear and Establish Site**



Using the information provided during the site survey and the established levels, coordinate and instruct the excavator to prepare the site for construction works to commence.

Consider what machinery you will need to carry out the excavations and how they will access the site.

- **Site Set Out**

This function is most often performed by the builder themselves, so as the Owner-Builder it may be necessary to engage the services of the surveyor to assist in this set out.

Getting this important step right first time will save you money and prevent possible litigation or the withholding of approvals if the structure is not sited as per the approved plans.

- **Under Floor Services**

Particularly for slab on ground construction, it is important to coordinate the services which are to be installed under slab.

These may include:

- Water reticulation (hot and cold water)
- Electrical services
- Sub floor heating elements
- Vacuum systems
- Drainage – Sewer and Stormwater

Ensure all sub floor installations are adequately supported or founded, be certain that all necessary inspections are completed and certificates issued as required.

Lagging as necessary is to be installed at this point for both insulation requirements and for all slab penetrations.

- **Footings**



The soil or geotechnical engineer will have in consultation with the structural engineer and reference to the completed drawings designed the footing system for the dwelling.

Concrete footings and slab design need to be in accordance with AS 2870 and an inspection of the reinforcing steel and trenches will be required before the pour.

Where footings are to be excavated, this is normally done by a backhoe.

Depending on soil type and subsoil stratas, specialist equipment such as rock breakers etc may need to be used.

Plan these works carefully and consider the most effective and economical system to suit the ground conditions.

Where trenches, pits, bore or pile holes are dug, ensure they are not left open for any longer than is necessary.

Not only do they present a risk to visitors to the site but also pose a health risk if allowed to fill with water and let sit stagnate.

Water intrusion and edge subsidence or damage will also generally make the footings bigger than they need be, this can result in the use of additional concrete not really required and increases the cost substantially.

The steel fixer or concrete contractor will fix the reinforcing steel as per the approved design.

- **Brick Base and Foundation or Retaining Walls**

As required, the bricklayer can now set out and lay the foundation or sub floor walls, any piers or retaining walls.

Concrete footings should be allowed to cure for a minimum of seven days to reach optimum strength.

Remember that a minimum clearance of 230mm is required from the lowest sub floor member to finished ground level for all suspended floor structures.

- **Termite Treatment**

These days many methods of termite treatment are available and it is important that you investigate all the possibilities to determine the most suitable protection for your dwelling.

Termite protection is covered under AS 3660.1

Check with your local authority and make sure you are fully informed of their requirements in respect to termite treatment and use only reputable, qualified and appropriately licensed companies to carry out these works.

Primarily there are two types of termite barriers in use today:

- 1) Physical, such as termimesh, ant caps, granite guards etc
- 2) Chemical, including perimeter protection and replenishable reticulating chemical system which are proving extremely popular with new home builders.

Make sure you are familiar with the maintenance required to ensure the continue integrity of whichever system of protection you install.

A “termite brochure” is available from your local Fair Trading Centre and can be provided upon request.

- **Formwork or Boxing**

Before the slab can be poured, it is usual to have to form up or box unsupported areas or edges of the slab.

In most cases these works are completed by the concreter.

Make sure the concreter is aware of and allows for any setdowns in the slab including, changes of level, shower compartments, weatherproofing at garage entry etc.

- **Concrete Slab**



Fabric reinforcing mesh can now be installed, usually over a waterproof membrane or vapour barrier, (builder plastic).

Joints in the membrane will be lapped and taped (min. 200mm) and the mesh stood on chairs to achieve the required top and bottom covers.

Where necessary, control, expansion or articulation joints will be installed as per the design and the slab will be poured and finished as specified.

These works are all generally completed by the concreter.

Any penetrations through the slab must be sealed and or lagged.

After the slab is pour, coordinate and consult with the concreter on the stripping of formwork or boxing and seek advice on the best method to cure the slab.

Allowing the slab to dry to quickly will result in cracking to the surface and at worst, affect the structural strength achieved.

- **Floor Framing**

If a timber floor system is used, the carpenter will set out the bearers on the piers and foundation walls.

The joist are then laid and the timber floor membrane is affixed to the sub floor members.

The floor membrane could be either planked, boards, sheet or a combination of these systems.

The carpenter must ensure that all joints are fast and that the bearers fit tight to the piers.

Any problems not noticed and rectified at this point will result in annoying noises and squeaks and possible failure or subsidence of the flooring system.

- **Wall Frame**



Your carpenter will now generally stand the wall frames and associated bracing and tie downs as required by the design.

It is most common for prefabricated wall frames to be utilised and this requires accurate drawings and specifications to ensure they go together with a minimum of fuss.

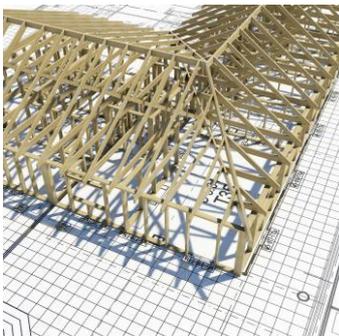
Wall frames are to be constructed, installed, braced and tied down in accordance with AS 1684.

This allows for general construction types as used on most residential dwellings, any unique, extraordinary or structurally demanding design will require design and certification from a structural engineer.

Noggings and fixing points for fixtures such as cisterns and tapsets should now be installed in accordance with the approved plans.

- **Roof Trusses**

Depending on the design, most standard construction for domestic dwellings these days utilise pre fabricated, gang nailed roof trusses to support the tiles or sheet metal roof covering.



The carpenter generally erects these after the wall framing and bracing are in place.

They are installed in accordance with the suppliers details and will include the use of triple grips, speed brace etc to ensure adequate bracing and hold down.

- **Windows and External Door Frames.**

At this point it is normal for the carpenter to go through and fit out the all external opening in respect the door jambs, windows complete with reveals etc.

Flashings should be secured and check form correct installation at this point.

It is advisable to go through and check that all doors and windows are plumb and true.

- **Roof Drainage, Guttering and Fascia.**

Roof drainage including valleys, box gutters and flashings should now be fixed by the roof plumber.

In most cases now the roof plumbing is carried out by a separate contractor and the used of preformed extruded gutters and fascias are commonplace.

It is important to ensure all gutters are provided with adequate fall, downpipes are appropriately spaced and that in long straight runs the required expansion joints are incorporated into the design.

- **Roofer**

The roofer can now affix the tiles or roof sheet as specified.

Sarking should be used as it greatly enhances the waterproofing of the roofing system, assists in insulation and helps to prevent dust entering the finished dwelling.

Fixing systems for both tiles and roof sheets will depend on the category of the site and the associated design wind loading.

- **Plumber**



The plumber can now complete the rough in, that is install the hot and cold water piping throughout the house.

It is important that pipes are adequately supported and fixed with pipe saddles or clips to minimise the event of 'waterhammer'

Where pipes pass through stud walls they should be insulated with an appropriate sarking and if possible made fast with a silicon sealant or in the case of steel framed construction a rubber grommet.

Saddles and clips should be of a non ferrous type to prevent a reaction which may lead to rapid corrosion of the installation.

If gas is to be installed, then any in wall pipework should be completed at this time.

Remember that all pipework requires pressure testing and inspection prior to be concealed by the wall linings.

If the plumber is completing the drainage, then external and or underground works including sewer and stormwater pipework should now be completed.

- **Electrician**

As for the plumber above, the electrician can now complete the rough in of the wiring.



This may include lighting, power distribution, TV Coaxial points, prewire of the telephone, intercom systems and home entertainment.

The meter box and fuse board can now generally be fitted.

- **External Cladding**

The bricklayer can now complete the face brickwork to the external walls and in the case of sheeted surfaces or plank clad walls, the carpenter can fix the external cladding.

Ensure that previously fix flashings are pulled through or finished correctly to provide the waterproofing adequately.

The carpenter can fit the soffit linings at this point.

- **Wet Area Flashing**



A specialist waterproofer should be engaged to install the flashings and membranes to all wet areas as required.

Make certain that all works are carried out in accordance with the manufacturers specifications and recommendations for application and that a certificate verifying the systems rating is issued by the contractor along with the required warranty details.

Having been involved with building inspections and defect report writing on residential building for many years, we can state that the failure of the waterproofing systems particularly in the shower area would be the most common defect found.

Notwithstanding the above, the systems now used are far superior to previous applications, and a well installed membrane will these days provide a substantial life.

Be aware of the different types of application used for sheet floors as opposed to concrete slabs and ensure the correct system is used.

- **Wall Insulation**

Wall insulation such as batts etc can now be fitted.

- **Internal Linings**

Once all the in wall or 'hidden' services are completed, tested and inspected as required, the walls can be lined.

Ensure all wet areas are inspected and certified as required and that the wall and floor tiler has completed the required flashings if any.

Check wall cavities for cleanliness and that vermin protection and wall ties are free of any excess mortar.

The wall sheet, cornices and mouldings should now be fixed in accordance with the manufacturers recommendations.

- **Joinery and Fix Out**



Internal door jambs, skirting, moulds trim and other joinery can now be completed by the carpenter.

- **Floor and Wall Tiling**

Your tiler can now come and lay floor and wall tiles to all areas as required. Grouting should be left for at least 24 hours after the tiles are laid and large areas of tiled flooring should include the use of a control or expansion joint to minimise the possibility of movement cracking.

The most common place for this cracking to occur is at internal or re-entrant corners.

Make certain all sheet flooring which will have a tile finish is correctly secured and sealed to avoid problems with movement.

- **Painter**

Utilising the paint system as specified and selected, the painting contractor can now apply sealers, primers, undercoats and or finish coats as required.



Paint quality can vary considerably and the cheapest alternative may not always provide the durability or standard of finish expected.

It is advisable to discuss your specific needs and expectation with a colour consultant at the suppliers or with your selected contractor.

Painting contractors should go through and make good any 'popped' or exposed nails, imperfections in mitred joints etc prior to commencing the application of the product.

If any imperfections are noted which are unacceptable or not within the capability of the painter to rectify, the responsible tradesperson should be recalled.

- **Plumbing and Electrical Fitout**

The plumber and the electrician can now return and complete the fit out of fixtures, fittings and PC items, this may include:

- Range Hood
- Range
- Hotplates
- Wall Oven
- Light Fittings
- Toilet Suites
- Basins
- Taps
- Laundry Tub
- Kitchen Sink

- **Ancillary Services**

Now is the time to consider the following:

1. Telephone, final connection of service
2. Ceiling insulation, install as required

3. Landscaping, this may include plantings, pathways, vehicular drives. water features etc.

- **Finish Up and Site Clean**

Before moving in complete the installation of fly screens, shower screens, security doors, garage openers, gates, fences etc and ensure the site is clean and free of all debris from the construction process.

The above list whilst not exhaustive gives a general guide to the sequencing of works on a 'standard' domestic dwelling using traditional building systems and or methods.

Special design features or difficult sites may require the use of trades other than those detailed above such as structural steel and or sail shades etc.

2.10.2 Construction Schedule

We have provided a building schedule spread sheet, the use of which should become clear once studied and considered in respect to your project.

Client Name:			Job No.:	
Address:			Lot No.:	
Phone:			RP No.:	
FAX:			Council:	
Mobile:			Address:	

Activity/Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
Garage Services																										
Garage Contractors																										
Order Materials																										
Clear and Prepare Site																										
Set Out - Surveyor																										
Temporary Power																										
Plumber - Water On Site																										
Electrician - Footings/Plugs																										
Drainage - Under Slab																										
Insulation																										
Steel in Footings																										
Inspection - Steel Foundations																										
Concrete Pour - Footings																										
Brickwork - Base Course																										
Concrete Form - Prepare																										
Steel in Slab																										
Insulation																										
Pool Services																										
Concrete Pour - Slab																										
Carpenter - Beams/Joists																										
Carpenter - Floor Studing																										
Pool Barriers to Wall Frames																										
Carpenter - Wall Frames																										
Carpenter - Roof Trusses & Tie Beams																										
Carpenter - Windows																										
Frame Inspection																										
Plumber - Roof/Outlets																										
Plumber - Rough In Hot/Cold Water																										
Inspection																										
Electrician - Pre Wire																										
Carpenter - Frame Wrap																										
Bricklayer - Walls																										
Self Change																										
Drainer - Competition level & Water																										
Plumbing Inspection																										
Internal Linings																										
Carpentry - Joinery																										
Carpentry - Floor																										
Painter																										
Waterproofing																										
Floor/Wall Tile																										
Plumber - Flood																										
Electrician - Flood																										
Final Job - Preparation																										
Final Treatment																										
Pool Inspection																										

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Referring to the sample will help.

In our schedule you will see a 26 week programme.

Each week is divided into seven days, with the last two days shaded in. This, of course, indicates Saturday and Sunday.

We would suggest that you don't schedule any works on those days. However, this is up to you and what you have planned.

Try to give yourself some free time, for example, if you pour concrete on Thursday don't restart 'till Monday. It gives you some flexibility.

Don't dig your trenches on a Friday and leave them open all weekend. Reschedule to keep continuity and save yourself from a multitude of hassles.

Be aware of the possibility of collapsing trenches – children or others falling in – rain or flooding filling them.

When ordering windows, organize your delivery exactly when you need them to guard against theft, damage, water penetration, vandals, etc.

With inspections, plan them with a minimum of 48 hours notice. Most authorities will carry these out the next day, but ensure you check.

The plumber will need notice for installation of the bath and/or spa when the roof goes on. Check with both the plumber and electrician as to what their needs are.

Theft is rife in the building game. You can never be sure that your goods and materials will be safe. Once you start getting your prime cost items installed, you may want to think about sleeping on the job until lock-up stage.

Liaise with all your contractors as to when they will want to be on site. For example, the painter might well want one or two days between the carpentry/ joinery and the carpenter fix out in order to avoid masking of your finished items, kitchen benches, hot plates, etc.

The water proofing contractor and floor and wall tiler (if not the same contractor) might need some contact with each other.

Don't run off and hire a power pole – the electrician might not want or need it.

If you are having a swimming pool, does it need to be excavated first?

Tips

Before commencing the building schedule try to estimate how long each trade will take to complete the works indicated on the schedule.

Check with your contractors before producing the schedule, that the times are realistic.

Blank out public holidays, RDO's etc and complete you schedule.

We have provided a tutorial for the use of the Construction Schedule, it is accessible from the resources download page on the website and is viewable in Windows Media Player.

2.10.3 Site Coordination

Organisation

On site coordination requires you to be disciplined and organised.

Using the file structure and the proforma provided in this manual will go a long way to helping you achieve this.

We have provided the structure, only you can provide the discipline.

With the schedule set, you will need to monitor and review the progress of the site on a daily basis if possible.

Keep a good record, a site diary is the best solution here, but it must be maintained religiously and accurately.

Did you know that during a conflict or dispute mediation or resolution process, a well maintained and detailed site diary is considered a legal document.

In addition, we strongly recommend scheduling site coordination meetings programmed on an as required basis.

These meetings become increasingly important when delays occur and it is necessary to reschedule.

In many instances, on smaller projects, this can be achieved through telephone calls, faxes or emails.

Just be certain you record all correspondence and agreements or undertakings for future reference.

It is your responsibility to ensure all Trade Contractors, service providers and suppliers fully understand where and when they will be required.

Telephone calls, reminding contractors or suppliers of their commitment, is essential in ensuring the project stays on track.

Where a delay is known to occur, give the contractor as much notice as possible to allow them to reschedule.

Supervision

If you are undertaking the supervision of the works yourself, the details included in the sample specifications and the section, "Known Problem Areas" will be of use when inspecting works for progress or final payment.

Refer to your contract and any variations to confirm works are completed and use the certifications or inspection checklist as required.

General Coordination

As the Owner Builder you are responsible for the site and all the works conducted therein, this may include but is not limited to:

- Setting out the project
- Providing storage facilities and temporary services
- Paying Trade Contractors
- Satisfying compliance inspections (plumbing, footings, bracing, final
- Ordering and arranging delivery of materials and plant
- Maintaining site cleanliness and safety
- Managing delays and disputes

2.10.4 Delays Record

The delays you encounter on your site need to be recorded.

The main reason for this is the required modification of the Construction Schedule.

Additionally, the recording of delays may be useful in identifying specific trends with suppliers or contractors and may be used as supporting materials during dispute resolution.

We recommend entering the data into the site diary.

2.11 INSURANCE

Insurance is a necessary evil on all projects, and one of those areas we never want to have to deal with.

But things do go wrong, accidents happen and not everybody is as honest as you would like.

You, your site, the people working on or visiting the site, the materials and the construction itself should be insured.

All the money you can save by being an organised owner builder will be lost quicker than a heartbeat if inappropriate or inadequate insurance policies are held.

Abacus Training advises that:

All policies and all insurance companies are different in respect to what is covered and to what extent.

It remains your responsibility to ensure you read and fully understand the Product Disclosure Statement (PDS) for any policy you are considering, to satisfy yourself that you are getting what you expect.

Statutory Protection

In the Australian Capital Territory, builders must carry insurance that protects the consumer from:

- A failure to complete the building works due to insolvency, disappearance or death of the builder
- Defects that appear after completion if the builder has died, disappeared or become insolvent.

This protection is effected through either an insurance policy or a fidelity certificate and will cover up to an amount of \$85,000.00

Owner Builders are not able to effect these insurances or obtain a fidelity certificate.

As the owner builder, you will be responsible for warranty repairs for a period of up to 6 years for structural works and 2 years for non structural elements.

You do not need warranty insurance. However, as a supervisor of building work, an owner-builder needs to be aware of insurance requirements, in particular, workers' compensation for any workers that are involved in the project. Owner-builders can check with their insurance provider for advice on insurance needs, including public liability and increasing the house insurance to cover any additions.

Following is a list of the insurances you need to consider before embarking on your project.

In addition to holding your own insurances, you need to ensure each and every trade contractor you use is correctly covered and has in place all necessary insurances to cover them, their workers and their work.

At the end of this section we have included an insurance register which can be used to record and update all insurance details for the project.

2.11.1 Builders All Risk

Sometimes known as Construction Insurance.

This policy covers the works on the site and the material securely stored on site from theft, fire, storm, wilful damage etc.

It can also be extended to cover items in transit and other defined events as specified in the policy.

As with all insurance, be certain you understand the specific inclusion and more importantly exclusions.

Also what if any excess is included and how it affects the premium paid.

2.11.2 Public Liability

While it remains your responsibility to make the site as safe as is possible and to put in place certain risk management strategies, accident still do happen.

It may be a visitor to the site, a friend, a relative or even a member of the general public who falls, trips or in some way injures themselves on the construction site.

Should they seek to claim damages, you will need to be insured to cover any associated costs.

Quite often, a lower premium can be achieved through insuring for Construction (All Risk) and Public Liability with the one insurer.

2.11.3 Workers Compensation

WorkCover, or workers compensation insurance is to provide for loss of income due to accident or injuries received during the conduct of works on or associated with the a workplace.

It remains a legal obligation for anyone who employ staff on a full or part time basis to provide adequate workcover insurance.

As the Owner-Builder and therefore the Principal Contractor, it is your responsibility to:

- Provide Workers Compensation for people employed on your site, or
- Ensure all trades people and contractor carry their own policies and that these policies are current and appropriate.

You should contact workcover prior to engaging contractors to ensure you have an understanding of your liability in respect workers compensation should anyone you have engaged fail to meet their workcover obligations.

For all information about WorkCover services including requests for advice and reporting of workplace accidents and dangerous occurrences, contact their offices on:

Telephone: (02) 6207 3000 or (02) 6205 0200

Facsimile: (02) 6205 0336

Email: workcover@act.gov.au

You can also visit their offices:

Level 3, Callam Offices
Easty Street
WODEN ACT 2606

Correspondence to be forwarded to:

GPO Box 158
Canberra City, ACT 2601

Emergencies:

The above telephone number (ie 6205 0200) should be contacted for emergency calls during office hours. It will provide the contact details below when called after hours.

After Hours Emergencies

In the event of a major incident or should you require a visit to your workplace after 5pm Monday – Friday or on weekends, an ORS WorkCover Inspector can be contacted on the following numbers:

- Occupational Health & Safety – 0419 120 028
- Dangerous Substances – 0419 120 028
- Gas Safety - 0434 073 104 (after hours only, for emergencies dial 000).

2.11.4 Warranties

Following is an extract from the Guide to Building and Renovating Your Home.

Statutory warranties are implied by law whether or not they are detailed in the contract. Statutory warranties require the construction to be carried out:

- ⌚ In compliance with the Building Act 2004 (ACT)
- ⌚ In a proper manner and in accordance with the approved plans
- ⌚ Using good and suitable materials
- ⌚ With reasonable diligence where no completion date is specified
- ⌚ To ensure it will reasonably meet the requirements expressly made known by the owner

In the ACT statutory warranties expire—

- ⌚ For structural work, at the end of six years after the date on which the Certificate of Occupancy was issued;
- ⌚ For non-structural work, at the end of two after the date on which the Certificate of Occupancy was issued.

Many of the PC Items you purchase will come with a manufacturer's warranty.

There are several ways to retain copies of these for claims that may result from failures etc.

We recommend keeping them in a separate file either, scanned and retained electronically or in the original hard copy format.

Whichever way you decide upon, make certain you can readily access them as required and that all necessary information or supporting documentation is retained including:

- Receipt of purchase
- Store Invoice
- Copies of any completed warranty forms
- Details and proof of extended warranty purchased

Insurance is a necessary evil on all projects, and one of those areas we never want to have to deal with.

2.11.5 Householders Insurance

General Household Insurance may cover some of the works conducted on site, but be careful, again check PDS and ask questions.

Contact Workcover and discuss a Household Workers' insurance policy.

This will cover your cleaner, your nanny or your gardener if they injure themselves in the course of providing paid services to you at your residence.

2.11.6 Register of Insurances

It is advisable to keep a register of all insurances you hold current in respect the owner-builder works you are undertaking.

The following table is an extract from the Design Brief Checklist which should as a minimum; include the policy details as indicated.

Keep it in the master file for the project to allow easy access to the information.

PROJECT INSURANCES		
TYPE	PROVIDER	POLICY NUMBER

Remember, it is advisable to include the insurance details of each contractor on the relevant signed contract.

This information should include:

- Insurer details
- Policy Number
- Type of Cover
- Expiry date
- Name of the Insured.

2.12 WORKPLACE HEALTH and SAFETY

Each year, hundreds of thousands of incidents, accidents and illnesses occur in Australian workplaces.

Many of the injury claims were made by workers aged 16 years or less.

The burden this places on workers, businesses and the community at large is enormous.

Direct financial costs arising from workers compensation, hospitalization, rehabilitation, lost production and staff retraining is estimated to cost the Australian community several billion each year.

For workers, the human cost of injury can be equally devastating.

Pain, discomfort and rehabilitation are often accompanied by other psychological stressors.

These typically include emotional stress, strained relationships, uncertainty and disruption to study.

Workplace injuries also affect or intrude into a persons social and recreation pursuits.

Family members are affected in similar ways.

Medical rehabilitation and social welfare payments are other costs absorbed by the community.

Overall workplace injury and illness undermines Australia's economic performance and reduces our living standards.

Adapted from:

Department of Employment and Training Workplace Health and Safety Training Resource Kit

Introduction and Responsibilities

This section helps you to understand your responsibilities in the area of Occupational Health and Safety, particularly as they relate to owner-builders undertaking and managing their projects.

Whilst it remains true that no two workplaces or work sites are the same and that each circumstance has its own identifiable and inherent risks and hazards, the process and the methodology behind achieving a safe work environment remains constant across construction workplaces.

It is your responsibility as an owner-builder and therefore the person responsible for the worksite to:

- Recognise workplace hazards and risks
- Recognise appropriate control measures or strategies
- Contribute to establishing better controls
- Complete relevant workplace documentation in respect to OHS issues.

Workplace health and safety is a generic or general term which relates to the health and safety of persons performing work.

It further relates to the protection of the public from danger which could be present as a result of that work and the protection of the public and persons engaged in work activities as a result of plant, equipment, materials and other related sources.

Any workplace in Australia is governed by either Federal/Commonwealth or State legislation.

Legislation varies from state to state, but all are based on the National Standards developed by the National Occupational Health and Safety Commission (NOHSC), now commonly known as **Worksafe Australia**.

Each state or territory has its own specific department which enforces these laws.

History of Workplace Safety

Workplace Health and Safety Legislation has existed in varying forms for many years.

Originally our legislation was based on the English Factories Acts 1844 – 1894.

Australia inherited this style of occupational health and safety as a result of our influence and position as a member of the Commonwealth.

Today, Australia has adopted the Robens Model as the basis of its workplace health and safety legislation.

The emphasis is on proactive prevention, rather than reactive compensation.

The National Occupational Health and Safety Commission, (**WorkSafe Australia**) has a “watch dog” role in seeing that all states and territories administer effective high quality Occupational Health and Safety practices, standards and legislation.

The commission is made up of Employer Associations, Union Representatives and State Government Representatives.

The group makes recommendations to the State Workplace Health and Safety Council, who will support the relevant Minister in the legislation of the Act.

Workplace Occupational Health and Safety Acts

All states and territories have their own independent but conforming legislation in place.

Broadly, these Acts are administered in the following manner, with only minimal variation being evident from authority to authority.

Workplace Health and Safety Council

The Minister takes advice from this council, consisting of Employer Organisations, Government Representatives, Unions and subject matter experts.

They meet to establish new laws, codes and practices for the various industries they represent.

A large function of the Workplace Health and Safety Council is to promote education in all areas of Health and Safety.

Administration of the Act

The legislation is administered by the Minister of the appropriate department responsible for OHS in each state or territory.

Workplace Health and Safety Industry Committees

The Minister establishes Industry Workplace Occupational Health and Safety Committees of independent expertise such as Building, Manufacturing or Aviation.

These committees advise the Workplace/Occupational Health and Safety Council on recommendations on changes and policy matters

Workplace Health and Safety Inspectors

These inspectors are employed by the Department and offer expertise in safety matters.

Inspectors have wide ranging powers to inspect workplaces and assist Workplace Occupational Health and Safety Representatives and Employers to improve safety standards.

Their duties include the investigation and reporting of workplace accidents, incidents and near misses.

These inspectors are employed by the Department and offer expertise in safety matters.

Inspectors have wide ranging powers to inspect workplaces and assist Workplace Occupational Health and Safety Representatives and Employers to improve safety standards.

Their duties include the investigation and reporting of workplace accidents, incidents and near misses.

Australian Standards

These standards are critical to Occupational Health and Safety as they guarantee safe manufacturing of products and machinery.

They also specify the minimum safe work procedures and practices when undertaking defined work tasks.

Like the regulations, they further identify methods of complying with the legislation.

Codes of Practice

More general information on what are considered and accepted safe work practices within an industry, profession or in high risk cases, specific tasks.

They are not law, however will be considered as evidence in a Court, inquiry or investigation as evidence as what constitutes an acceptable industry practice.

Obligations of Employers, Employees and Others

Each of us has a responsibility in the workplace to keep safe.

Keep safe ourselves, keep safe workmates and keep safe the general public or anyone who comes into or is affected by the workplace.

Employers have identified responsibilities in the areas of:

- The work environment must ensure the health and safety of the employees and visitors
- Plant and machinery are adequately maintained and the employed systems of work are as far as is reasonably practicable, safe and without risk to the health and safety of any person.
- Work duties will not affect the health and safety of others

Employees have identified and defined responsibilities and the law imposes obligations on employees to:

- Comply to the instructions given for workplace health and safety
- use appropriately all personal protective equipment
- not interfere with or misuse anything provided for workplace health and safety
- not place at risk any person at the workplace
- not willfully injure themselves

The responsibilities of others include:

- Must not willfully or recklessly interfere with anything provided in the interest of health and safety
- Adhere to safety directions given by the workplace principal or their representatives for the workplace concerned

The above represents our moral and lawful obligation or our Duty of Care to health and safety.

The authority handling workplace safety for New South Wales is WorkCover.

Their website address is www.workcover.act.gov.au

The site includes a great deal of information relevant to responsibilities of persons in the workplace and should be reviewed by all owner builders prior to commencing works.

This will help you ensure your site remains compliant and more importantly safe for all those affected by the works undertaken.

The site also includes some very useful resources to help you manage site safety.

We recommend you download and use the Safety Handbook (ACT Building and Construction Industry).

This document will guide you through the process of managing safety on most building projects and can be adapted to suit a small domestic construction site.

We have included our resource for managing safety, which in some areas duplicate the information provided in the pack.

Whichever one you decide to use, it is important to understand your requirements as an owner-builder, to manage safety on your site and to comply with the relevant laws, act and codes of practice.

2.12.1 Site Safety Induction

It is the responsibility of the Owner Builder to ensure all persons working on, delivering to or visiting the site, have been appropriately inducted onto the site and are aware of the hazards, controls and emergency procedures relating the site.

It is a requirement that all people attending any construction site, have completed a General Site Safety Induction Course - provided by a Registered Training Organisation, or accredited provider, and are in possession of their "White Card"

This is proof that they have completed the nationally accredited unit of competency “Work Safely in the Construction Industry”.

We have allowed for a register of all site entrants, to be recorded on the Work Place Plan Proforma.

Ensure all hazards specific or peculiar to your site a well known to all who enter the site for whatever purpose.

Our associated Safety Management System fo Owner Builders has been specifically designed for use on a typical domestic dwelling project as would be constructed bby an owner builder.

This valuable resource is available for download from our owner builder project management website ask your trainer for access key and password.

2.12.2 Workplace Plans

Construction Workplace Planning

The following Construction Workplace Plan is adapted from the sample proforma available on the workplace health and safety website.

It is provided as the basis upon which a suitable Workplace Construction Plan may be produced which identifies the hazards, risks and controls specific to your project.

The format and guidelines follow the sample provided on the Workplace Health and Safety Website and is typical of a plan suitable for use in respect a domestic dwelling constructed in accordance with accepted and standard building practice

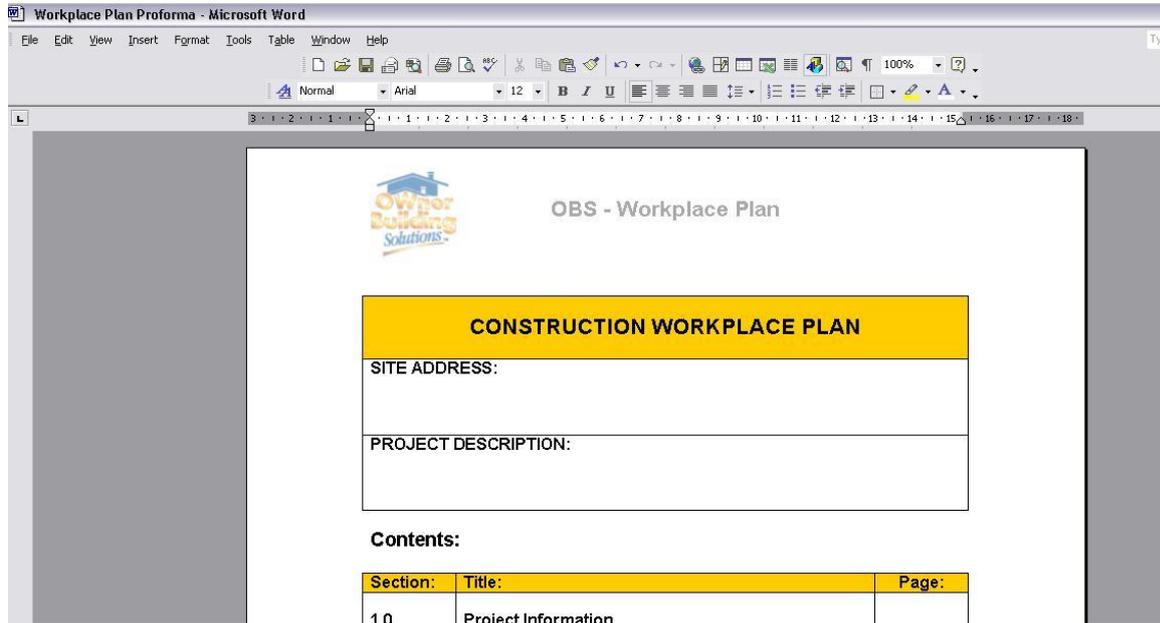
NOTE:

It is important that you understand that every site is different and that as the Owner Builder you are responsible for identifying hazards, controlling risks and monitoring the ongoing effectiveness of the strategies employed.

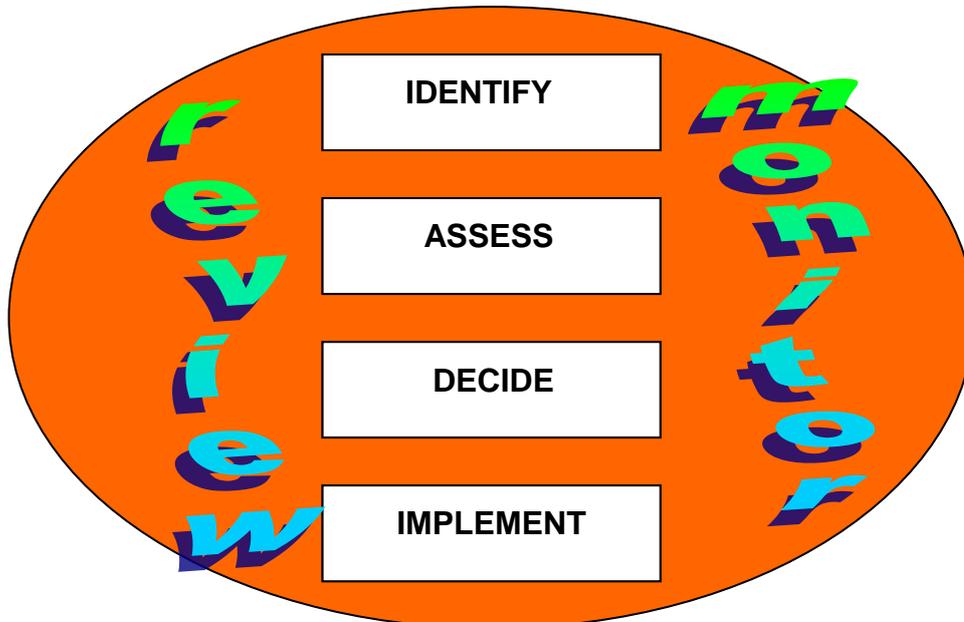
No two projects are the same and the best way to maintain a safe site is continual reassessment.

Use this profoma to develop your specific workplace plan and as necessary consult the WH & S website for further information:

www.workcover.act.gov.au



Remember the process for safe work practices.



Definition of a Construction Workplace Plan:

“**workplace construction plan**” is a plan which identifies a specific construction site and states:

- a) the hazards to health or safety that the person responsible for producing the plan has identified as generic or specific to the related construction workplace.
- b) the assessment of the risks that may result from the identified hazards.
- c) the control measures being used or proposed to be used to prevent or minimize the level of risk.
- d) the process by which all measures implemented shall be monitored and reviewed for effectiveness.
- e) the method of reporting additional hazards as they are identified.

The plan shall also include:

- a) a description of the works
- b) the name and address of the principal contractor, responsible person or the owner builder.
- c) the date the plan was produced and of any subsequent amendments.

The plan will be written in such a way as to be easily understood by all persons who are affected by the plan and have cause to be familiar with its contents.

Work Method Statements

Work Method Statements are required for all works which involve high risk activities such as working in confined spaces, working at heights, removal of asbestos, working in trenches greater than 1.5 meters deep etc.

These must be produced by the individual contractors who are engaged to perform the works and shall be submitted to the principal contractor.

As the owner builder (principal contractor), you must retain a copy in the project file for the duration of the project.

A Work Method Statement Proforma is included in this section of the Project management System.

Risk Control

Risk control is the process of eliminating or reducing the risk factors.

Control measures must be chosen and implemented to eliminate or reduce the risks as far as possible.

In deciding on the most appropriate measure to be used practicality and availability of the control measure must be considered.

The following control measures are listed in order from most to least effective or desirable:

- 1) Eliminate the hazard
- 2) Substitute, modify or isolate the risk
- 3) Engineer a control
- 4) Administer a control
- 5) Use Personal Protective Equipment

2.12.3 Workmethod Statements

As the owner builder, you will be responsible for ensuring that workmethod statements are provided by all contractors undertaking high risk activities.

A definition of high risk activities is provided in the Abacus Training Workplace Health and Safety course text.

High Risk Construction Activity
that is
Working 3m or more from the ground during construction of a house

BACKGROUND INFORMATION	
Company Details	Flyin-High Tilers Pty Ltd 18 Scaffold Road Fallsville 4999 PH: 3333 9999 FX: 3333 9900
Company ABN	77 777 888 999
Site Address	87 Platform Avenue Hightown 4555
Planned High Risk Activity	To access a roof that is approximately 4 – 6m above ground, and fully tile the roof.

CONTROLS AND IMPLEMENTATION (To address the issue of falling 3m or more)	
Task Hazard / Risk	Method of Control
Falling 3m or more while accessing the roof	<ul style="list-style-type: none"> Principal Contractor will erect scaffolding around the perimeter and will provide a copy of the scaffold plan

A Work Method Statement is required for all high risk activities and should clearly identify the works to be carried out and the controls implemented to mitigate or remove the risk.

Details will include:

1. Company or Contractor Details
2. ABN if applicable
3. Site Address
4. Planned or proposed High Risk Activity
5. Task Hazard or Risk
6. Method of Control
7. Provisions for monitoring control measures

A sample Work Method Statement is included in .pdf format, accessible from the resources download page on the website.

2.12.4 Emergency Response

You must identify and have readily accessible contact information for emergency services and or response appropriate to you construction site.

This is allowed for in the workplace plan proforma and is provided as a guide for you to establish an Emergency Response Guide, specific to your site.

As a minimum you will need to identify and have accessible the following information:

- Emergency Contact Numbers
 - Hospital
 - Fire
 - Ambulance
 - Police
 - Doctor
 - Gas
 - Electricity
 - Water
- Emergency Muster Points
- Location of First Aid Kits
- Details of On Site First Aiders

2.12.5 Clean Site Principle

We cannot stress how important it is to maintain a clean and safe site.

A clean site is required by OHS laws and you can be heavily fined if you are found to be in breach of accepted practice.

A clean and well organized site is more efficient, increases productivity and minimises the risk of injury to workers or visitors to the site.

Abacus Training recommends the following steps be followed to establish and maintain a clean site:

- Set aside an area for the collection and storage of all waste materials, ideally fenced off or somehow quarantined from the rest of the site in an area which is out of the way and will not impede traffic or progress of the site.
- Identify the allocated area to all contractors and reinforce regularly, their obligations and responsibilities in respect to maintaining the site appropriately. (A well written contract or specification will establish these principles)
- Be disciplined and establish a set and regular routine for site inspection and cleaning.
- Have where possible, trade contractors remove from site their own waste materials.
- Maintain the collection area and remove waste materials from site on a regular basis so as not to overload the onsite waste area.
- Use appropriate guards, shields, barricades, hoardings, retention devices and signage to prevent injury to all site attendees.

2.12.6 Signage

Any person carrying out building works under an Owner Builders Permit must display a sign in a prominent position on the building site.

The sign must provide details of the permit holders name and the owner builders permit number.

The sign must have a minimum surface area of 0.5m².

Failure to erect and display a complying sign could result in prosecution under the provisions of the Act and a fine of up to \$1500.00.

Additionally, the Owner Builder must ensure that the appropriate danger, warning and advisory signs are displayed throughout the construction.

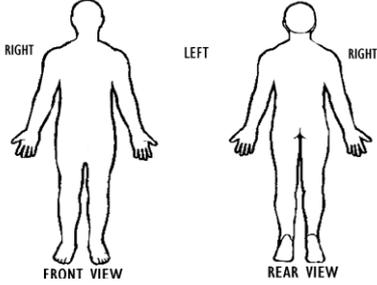
A sample of the signs which may be required are indicated in the picture below.

Construction Industry Signs



2.12.7 Incident Reporting**Details**

Details of incident (eg property, plant or environmental damage)			
Date of incident		Time of incident	am pm
Nature of incident			
Location of incident			
Description of incident			
Details of damage to equipment or property			
Name of person who received the report		Telephone	
Reported to authorities?	<input type="checkbox"/> Yes Provide details (when and whom): <input type="checkbox"/> No		
Details of injury (eg to a worker or visitor) and treatment			
Date of incident		Time of incident	am pm
Name of injured person		Date of birth	
Address		Telephone	
Occupation		Employer	
Activity in which the person was engaged at the time of injury			
Exact site location where injury occurred			
Nature of injury – eg fracture, burn, sprain, foreign body in eye			

Body location of injury (indicate location of injury on the diagram)			
Treatment given on site		Name of treating person	
Referral for further treatment?	<input type="checkbox"/> Yes Name of doctor or hospital: <input type="checkbox"/> No	Medical certificate received?	<input type="checkbox"/> Yes Attach copies <input type="checkbox"/> No
Injury management required?	<input type="checkbox"/> Yes Notify return to work coordinator <input type="checkbox"/> No	Name of return to work coordinator	
Reported to authorities	<input type="checkbox"/> Yes Provide details (when and whom): <input type="checkbox"/> No		
Witness to incident (each witness may need to provide an account of what happened)			
Witness name		Witness contact	
Witness name		Witness contact	

Investigation

Cause of incident or injury

3.0 HANDY HINTS

3.1 *Known and Common Problem Areas*

For each of the various trades and services you need to identify problems as they are occurring.

It is important to inspect works prior to making progress or final payments.

Following are several trade specific areas that should be considered and inspected prior to remittance of any monies.

- Plumber

Check saddles and fixings are adequate, failure to do so could result in considerable water hammer.

Check lagging on hot water pipes

Check location of all fixtures and tapware is as per the plans and specifications

Sight the final inspection certificates and certifications as applicable

- Electrician

Ensure correct height and location of all power outlets

Check all required certifications, approvals and inspections are complete

- Plasterer

Check correct fixing, particularly on bracing walls

Check joints are not in line with noggings

Check sanding and finishing is complete to a satisfactory standard

- Tiler

Check grouting is not completed for at least 24 hours after tile fixing

Check grout is true and consistent

Check trims and covers or edges are correctly fixed

- Carpenter

Check frame is tied and anchored correctly

Check bracing is installed as per the plans and specifications

Check for all required inspections and certifications

Check where possible fastenings and fixings are adequate

3.2 Delivery and Storage

Delivery and storage of materials on site will largely be the Owner Builders responsibility.

Two primary considerations:

- Neatness, organisation and access to stored materials which is directly related to the safe and efficient operation of the site.

Try to allocate an area on the site which is readily accessible for both the delivery and use of the materials.

Make certain the materials do not protrude into work or pedestrian areas and try to minimise 'double handling' of stored items.

- Weather protection of the stored materials.

It is important to ensure all materials are stored, stacked and or racked in a manner which will prevent damage or deterioration from exposure to the elements.

Wood products in particular require special attention when considering storage for future use, moisture content in timbers makes for considerable warping, twisting, shrinkage and distortion which can make the section unusable.

Consider the use of a site shed which is lockable if you intend to retain any valuable equipment, plant or materials on site.

Theft is considerable on building sites, and only well thought out security and storage procedures will minimise your exposure.

3.3 Material Defects

Check carefully all materials delivered to your site for damage and ensure the order is correctly filled.

You will be required to sign for receipt of the goods, this constitutes your acceptance of the order as complete, undamaged and correct.

It is too late after the event to complain about the quality or contents of a delivery.

Photographing damage at the time of delivery is often helpful in supporting a claim for damaged goods or defect materials.

3.4 Conflict Resolution

As the Owner Builder you will no doubt at some stage be involved in a minor or major dispute which will need your negotiating and communicating skills to resolve.

The best cure of course is prevention.

This can usually be achieved through demonstration of a sound understanding of the terms and conditions of your contract.

In short make certain from the start that your expectations are identified, documented and clearly understood by the associated trade contractor, supplier or consultant.

Sometimes, unfortunately, even with all the best intentions you will end up in dispute or conflict with one or more contractors.

Our best advice in this situation is to call a meeting with the parties involved, work through the issues in a calm, rational and professional manner.

Try to not let emotions play a part in the discussions.

Generally, most issues can be resolved in this way and will result in an acceptable outcome for all concerned.

If agreement or accord cannot be reached, you will need to have the matter settled by a third party.

You could agree to an independent consultant or subject matter expert to assist or you may choose to have the matter dealt with by a building tribunal or the Department of Fair Trading.

You do have access to have the matter heard by the Consumer Tribunal, visit the Department of Fair Trading website to get more information, the process and applicable fees.

4.0 SCREEN SHOT TUTORIALS

We have provided several interactive training videos for the use of specific proforma and spreadsheets included from the resources download page on the website.

The tutorials cover:

- Estimating Sheets
- Tendering Schedule
- Variations
- Cash Book
- File Structure
- Participant Register
- Construction Schedule

The Screen Shot Tutorials are accessed from the resources download page on the website and are in a movie format which is viewable in windows media player.

The tutorials show the actions required on the computer to access, view, enter date, print, save and store the various forms.