DESIGNFUL RESOURCE COLLECTION.

where do I start?

A GUIDE TO EMPOWER

THE PROCESS OF CREATING A

MEANINGFUL & INTENTIONAL HOME.

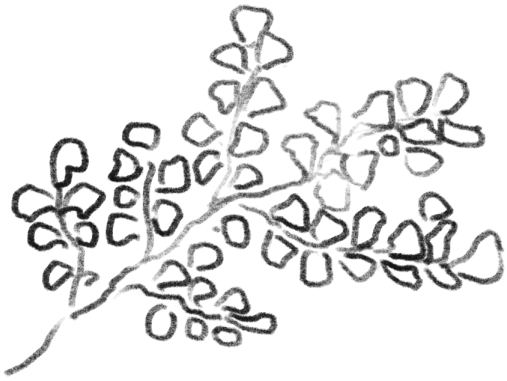
Contents.

Where do I start? At Designful, we understand that it can be challenging to know what your best first step is when considering building, extending, renovating. We believe that whether you know a little or a lot, you should start your journey with **knowledge** and **a clear and purpose-driven approach**.

That's why we've put together a *Resource Collection* to help guide you through some key considerations and processes when working towards your dream lifestyle and designing your home.

3.0

Resourceful.



3.1 *Due diligence*

3.2 *Loans*

3.3 *Building stages*

3.4 *Being an owner-builder*

- *Pre-construction stage: Design, consultants & approval fees*
- *Funding your build*

3.5 *Process & approvals*

4.0

Helpful.

4.1 *Embodied energy & materials*

4.2 *Materials*

4.3 *Interior materials*

4.4 *Flooring*

4.5 *Benchtops / surfaces*

4.6 *Embodied energy materials list*

5.0

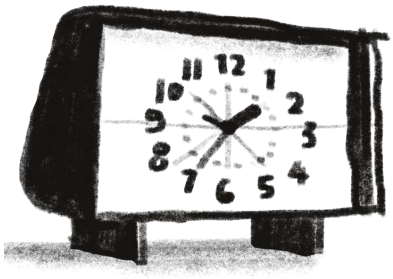
Extra Helpful.

5.1 *Activity 1.— the cost of 'imperfection'*

5.2 *Activity 2.— Values & briefing questionnaire*

5.3 *Activity 3.— too much stuff?*

5.4 *Useful Resources*



1.0

Thoughtful.

- **1.1** Values
- **1.2** Compromises
- **1.3** Creating a brief

‘Home is where one starts from.’ **– T.S. Eliot**

1.1 **Values.**

"Values describe the personal qualities we choose to embody to guide our actions; the sort of person we want to be; the manner in which we treat ourselves and others, and our interaction with the world around us" - Steven Mintz.

Values are fundamental beliefs that are of high importance or worth to us. Our values influence our behaviour and judgement. They are what guide and motivate our decisions, attitudes and actions on how we choose to live our lives.

The first stage of building or improving a home is getting clear on your values, to inform your brief.

By getting clear on your values, you can set yourself up to achieve a home that works for you and responds directly to your needs, aesthetic and lifestyle.

Understanding your true, personal values allows you to be clear about how you want to live. It will enable you to live an authentic and happy life for yourself, your family and with others.

By taking the time to define our values, we can begin to understand what our home needs to 'ideally' provide to enable the living and evolution of our authentic selves.

You should be revisiting your values throughout the design process to ensure you are keeping true to your core reasoning behind the project.

It can also greatly assist in cost control by bringing you back to what is essential when considering inclusions and when you need to make decisions to reduce your expenditure.

Please refer to **Part 5.0 Extra Helpful— Activity 2** for our VALUES + BRIEFING QUESTIONNAIRE.

It includes some things to consider and questions to answer, to help define your values and create your brief.

1.2 **Compromises.**

When we are in the privileged position of designing a new home or reprogramming an existing one, we want it to tick all our boxes.

We want it to function the way we need it to when we need it to, but how do we know where to draw the line?

When we are investing money or entering into a loan agreement, it is essential that our decisions have purpose and intention, as every square metre you add or addition you include is a transaction with time.

"The price of anything is the amount of life you exchange for it." - Henry David Thoreau

Time at work with which to earn money (and potentially interest) to pay for that design inclusion.

Time away from family and friends, from your life, to pay for that cladding, the spare room, the stairs to the attic, that vast expanse of glass, that walk-in wardrobe or that second bathroom.

Each of us deserves to live a happy life in a safe and comfortable home; as such, we need to ensure that we don't let our short-term Wishlist items compromise our long-term happiness and wellbeing.

Home loans are a part of life for most of us going into home ownership, and that's fine! We just need to ensure that in building or renovating, the balance is kept between 'house' and 'home'. Put too much emphasis on 'house' and how it looks, and it will come at the cost of your 'home' - having to disregard your personal happiness, life experiences and relationships, to earn the money to meet the financial obligations of your architectural decisions.

Instead, ensure that the physical requirements, functional inclusions and financial output for 'the house' are just enough to enable the positive work-life balance, wellbeing and life experiences of those beneath its roof, thus ensuring a sustainable 'home' life.

The 'dream house' won't make you happy, but the 'dream lifestyle' will.

Once we have a clear idea of our values and what we want our home to 'feel like', then the process of creating it can be much simpler than we think. We have some activities that you can complete to help with this process: **Part 5.0 Extra Helpful —** Activities 1 + 2.

‘People do not decide their futures, *they decide their habits* **& their habits decide their future.**’

– F.M Alexander.

1.3 Creating a **brief.**

What is a brief?

A brief is a document that communicates your thoughts, needs and desires for the project. It should cover the following areas:

- Your values
- The lifestyle or use your building needs to support
- Your functional and aesthetic requirements
- Your thoughts on maintenance, energy efficiency and sustainability
- How you wish to use your site
- Program/ space requirements and relationships
- Structure
- Materials
- Systems
- Outdoor spaces
- Landscape
- About you, your capacity and how you wish to be involved in the process
- Your budget

Your brief can be a dot point or more of a story style document.

As long as it communicates your intention, it will be a useful reference framework throughout the project.

Generally, your designer will use this and develop it into a working design brief, including your property regulations, site analysis and budget analysis.

We suggest you start with your values and lifestyle and go from there. Considering these fundamental elements ensures that your design inclusions are in line with the life you wish to lead.

Include the why's.

If you include some background and reasoning for your preferences, your team will better understand your vision. It will set you up to have more meaningful conversations about your project and the requirements.

A brief should be a consistent reference point throughout the design and planning process, to ensure that things are on track and the scope is not 'creeping'.

'Scope Creep' is a term used to describe the little additions that happen along the way in the design process. It could be a second toilet, more kitchen storage or a walk-in-robe. 'Scope creep' can quickly get out of hand and blow your budget if you do not have a reliable brief as your reference point.

Images and pictures can also convey a lot to others. If you are using pictures to communicate your thoughts, try to identify what you're drawn to in the image, point out precisely what it is about the image you like. It could be the light, the placement of windows or the material palette.

Try to keep in mind what is enough for you, and what are the 'wish list' items. About 95% of briefs we see are substantially bigger than the indicated budget. Start with your essentials and go from there.

While we all enjoy a sense of space around us, we often don't need as much as we think we do. The amount of space you and your family needs should respond to the functions that need to happen in your home.
Your brief will directly affect your costs.

The bigger the home or, the more inclusions, the bigger the budget required.

How to determine your budget

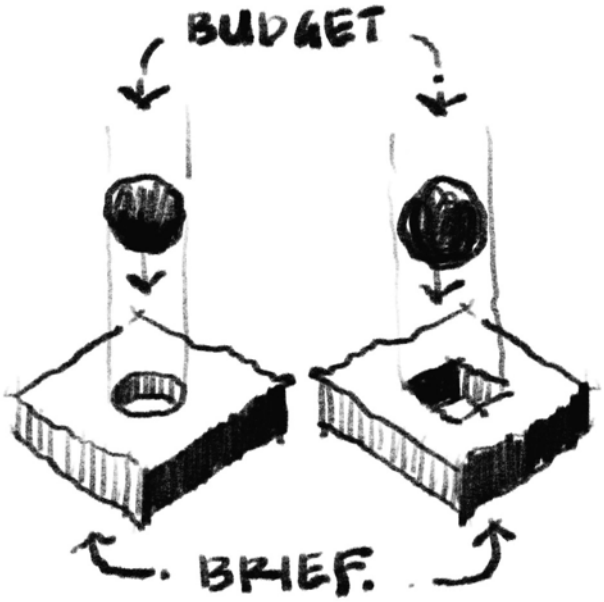
Your budget is not a figure that you make up. Your budget will be determined by your brief.

We suggest getting advice from a suitably qualified financial professional on what your capacity is if you are planning to fund your project from a loan. You should do this very early on in your process.

Once you understand what you can afford, then your brief will need to fit within your budget.

If renovating or extending, your brief can also be determined by how much the works will increase the value of your home or building. In this case, there is a delicate balance between property value and cost of works.

If the property value of the finished project is less than what you are going to invest, this is when you have 'over-capitalised'.



It can be wise to do some research on properties in your area and their average value. Then use this as a ballpark to inform your design decisions and the level of investment and works you are considering.

Instead, if you are happy for your budget to be determined by whatever the cost it takes for your brief to be fulfilled, then you will need to be prepared to invest early.

It takes time and money to get to a point where a suitable professional can provide you with an estimated cost of works, that can then form your budget.

There is a direct correlation between brief and budget. A brief directly affects the budget and vice versa.

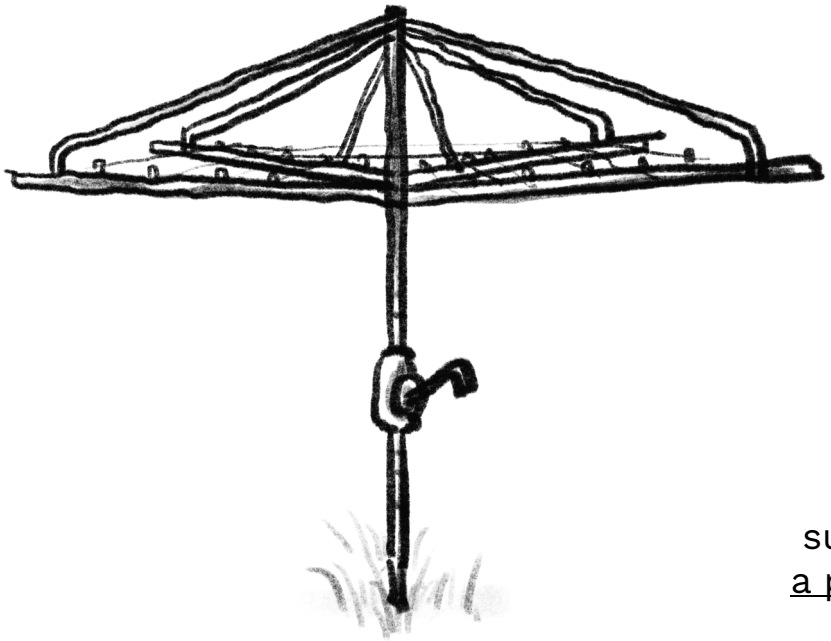
You cannot make a square peg fit into a round hole, and you cannot magically make your brief fit into your budget if they are not compatible.

To help you with forming the brief for your project, please refer to **Part 5.2—Activity 2** for our *Values & briefing questionnaire.*

2.0

Mindful.

- **2.1** Do you have too much stuff?
- **2.2** Passive solar design & the vernacular
- **2.3** Operational energy & low-impact living



‘Make your growth sustainable by moving at a pace that is challenging **but not overwhelming.’**

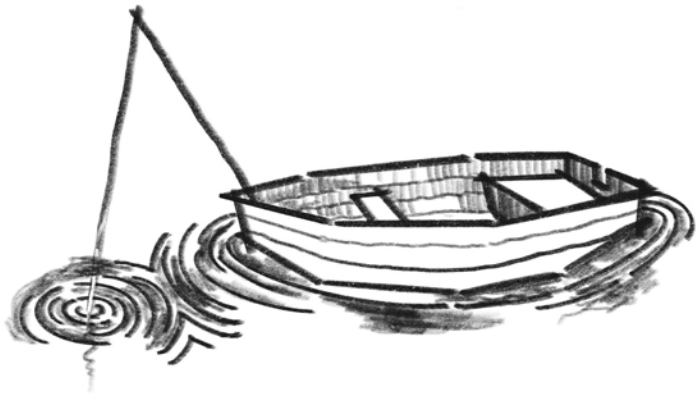
– Yung Pueblo

2.1

Do I have too much stuff?

Most likely answer... **yes.**

But don't worry, a lot of us are in the same boat.



Sentimentality.

Perhaps it's a toy badger or travel souvenirs, or maybe it's your kid's old school books. You see, to anyone other than us, these items could seem unimportant. Even though the box of school work is in the corner of the garage beneath camping gear, the travel souvenirs covered in dust on the mantle and the toy badger sits unnoticed in the linen cupboard, they are important because they are talismans of life and a person.

Many of us are working to reduce the number of objects in our lives and trying to live more simply. But, in the process of decluttering, we are each bound to come across these objects infused with memory. While we think we could part with them, that these mementos (and the memories they bear) should end up bolstered in a garbage bag alongside that jumper and ill-fitting jeans going to the Salvos, feels wrong somehow.

This is the problem. By using 'stuff', to carry our personal and family history, we are setting ourselves up for emotional stress. We need to realise that our stuff isn't a sustainable capsule for our memories.

When we get lost in the fog of life, of going to work, of paying the bills, of parent-teacher meetings or of just being an adult, time can seem to give us the slip. We hold onto mementos in the fear that we, or the people around us, will forget. Maybe we collect these objects, so like a trail of breadcrumbs, we can see where we started and take our minds back there to enjoy these moments again.

But is forgetting over time such a bad thing? The real talisman of a life lived is you and the people who helped build the memories. Even if these memories we cherish, start to fade, the legacy of those forgotten memories is the relationships or personal character that has strengthened as a result of them.

Having some objects for sentimentality's sake is great; there are some life experiences worth celebrating with what we furnish around us. However, we do need to recognise that the more mementos we gather, the more space we need to house them, the more time we will need to maintain them, and the more anxious you may feel when potentially having to part with them.

Our stuff doesn't carry the echoes of our life story. It really is just stuff. Memories are what connect us. They are a privilege shared between you and the people you love. There are many reasons why your time is better spent furnishing life with memories rather than objects. The simplest being; memories require less dusting.

Advertising & Social Media.

Our homes are meant to be our place of retreat and vulnerability. Yet, advertising is seeping through the veil via our technology/ devices.

Influencing our behaviours, our choices, how we measure our worth as people, and how we gauge the 'quality' of our homes.

Now any of us can shrug this off and say, we all buy things we end up not using, that's life - and sometimes it is! However, studies now show that up to 99% of what we buy is not in use six-months after the date of purchase. It seems high time we start questioning what we consider to be normal and 'part of life'.

With only 1% of what we purchase being actively used, we seem to be subscribed to an unsustainable system that is coming at a cost, not only to our pocket but also our well-being and the environment.

Where is it hiding?

We all know they exist. Those spots where 'things', 'stuff', objects and other non-essential doodads tend to accumulate. But how do we recognise them? It's pretty simple.

Found in the places we dread thinking about, we've listed a few common 'thing traps' that are found in the average Australian home:

Tupperware drawers/shelves.

Old lunch boxes, takeaway containers, a plastic butter dish with a cow face on it. The large flat container that seemed like a good purchase at the time. In reality, it doesn't fit much at all, so instead, you use it as Tupperware to contain the other Tupperware. Does anyone need this much Tupperware? Maybe, but it's safe to say most of us don't use half of it.

Overhead cupboards.

The quiet-achiever of 'out of sight out of mind'! It's only once you fetch a step-ladder that you find your collection of teapots and second-hand plates.

For some, overhead cupboards can be useful, but for a lot of us, especially those of us who aren't over six-feet tall, they are a classic example of a 'thing trap'.

The messy drawer.

An old friend to many of us. But where else are we supposed to store batteries, a set of tiny screwdrivers, out of date receipt fuel vouchers, the remote for the old TV, a calculator and a free bottle opener/keychain? It's a struggle for a lot of us, but it is a good insight into how much stuff we bring into the home, that we can't find a place for or even really care about.

Your wardrobe vs. that one chair in the bedroom.

After a long day, whether you've been chasing after kids or had a rough day at work, who can be bothered to fold and put away their clothes?

We may have perfectly good built-in wardrobes, but the idea of opening ourselves to the level of organisation required to shove our clothes in the drawers or find a spare hanger is too much at this time in the evening.

Then, an old friend beckons, the armchair. Already holding the clean washing and outfits from the previous few days, what's another pair of pants and a t-shirt?

Instead of opening the chaos of our wardrobe, our favourites are ready to be burrowed through on the chair.

We could ask why do we need built-ins when this chair holds the same cycle of clothes we wear, week in and week out, but that's too big a can of worms to open on a week-night!

The Garage.

It tends to be the point of no return. The king of modern-day storage, for everything but the car. Whether it be tools, moving boxes, curtains, old mattresses, a fridge, an armchair, old doors, wheelie suitcases, travel packs, old toys, the list can go on.

Now don't feel bad if you find one or several of the above 'thing traps' apply to your home.

Most of us have some version of a thing trap. It seems to be written into our nature as humans. As said before, our relationship with stuff is complicated.

While stuff can enable us to live happy and healthy lives, it is essential to understand that there is an ongoing cost for the objects and things we bring into our lives.

So do we have too much stuff? Most likely answer, yes. But we can change that, for the sake of both our personal well-being and the environment. In the wake of our worsening climate crisis, we have a responsibility to change.

Go to **Part 5.3—Activity 3** for some ideas on how to reduce your stuff.

'There's something about not being prepared for every moment that actually helps you engage with your community' - Jacqueline Schmidt

‘Clutter is not just the stuff on your floor. It’s anything that stands **between you and the life you want to be living.’**

– Peter Walsh.

2.2 Passive solar design **& the vernacular.**

There are a few fundamental design concepts that make for a well-designed building that is 'fit for purpose'

Site-specific design

Site-specific design means that the building is designed in harmony with the natural topography, climate and conditions of the site.

A site-specific design can reduce unnecessary construction costs, make the most of what the property has to offer, reduce the adverse impact on the site, make sure of local materials and resources and the result will be a building that 'belongs'.

To design a building with the site in mind, the following things need to be considered:

- Topography
- Slope and aspect
- Soil type
- Existing vegetation type
- Views/ orientation
- Native flora and fauna
- Existing resources
- Local and micro-climate
- Local land use
- Local culture

Two of the most fundamental things to get right in a site-specific design is the orientation for good solar gain and to work with the natural contours of the site.

These two considerations alone will reduce excessive excavation, and cost and aim in passive solar design.

User-specific design

For a design to function well and satisfy its purpose, it needs to be designed with the end-users in mind. The design should be reflective of the functions that the users wish to carry out in the building as well as the feelings they aim to create in the spaces.

To design a user-oriented building, an informative brief is required to clearly understand the functions, feelings and aesthetics the building needs to support.

Passive solar design

The concept of P*assive Solar Design* has been around for a long time. The ancient Greek, Roman and Chinese people developed and refined the concept to work for their particular climates as a necessity for comfortable living before mechanical heating and cooling were invented.

Passive solar design is aimed to draw upon the sun to naturally warm and cool a building through the use of considered openings, shading, thermal mass and cross ventilation. And, it works better, is cheaper and has far less environmental impact than mechanical thermal control!

Passive solar design employs extremely effective low tech design principles to lessen the impact of buildings on the environment, through reduced Operation Energy.

Passive solar design principles do not add cost to the overall construction costs and reduce ongoing lifecycle costs of buildings.

To employ passive solar design principles in Tasmania, the following should be considered:

- A thorough site analysis should be conducted to inform the siting and orientation of the building to maximise solar gain.
- Glazing should be predominantly oriented to the north and at least doubled glazed to reduce heat loss and heat gain.
- Considered thermal mass should be included to soak up heat or assist cooling when required.
- The envelope of the building should be well insulated and sealed to reduce heat loss.
- Effective shading in various forms is required to block out high-level hot summer sun but let the winter sun in.
- Considered cross-ventilation needs to be included for effective cooling.

*"We shape buildings, **then they shape us**"* - Kevin McCloud

Vernacular

The term vernacular describes a design that has evolved to meet the climate, culture and local resources of the area. Vernacular design typically makes best use of local materials, responds directly to climatic conditions and provides buildings that support the local way of life. They are typically simple, practical and functional.

Every area has a vernacular, including Tasmania. By embracing our vernacular, we are also supporting our local economy and reducing our adverse environmental impact through the use of local materials and tradespeople, designing for our particular way of life and climate.

Our Tasmanian lifestyle should be considered when designing a home, what we do around and outside the home will have an impact. Our abundant natural landscape lends itself to outdoor activities such as hiking, biking and boating and our homes can be designed in a way to support us to head out, and cater for storage of gear on our return.

We also have an excellent climate for growing our own food, and we can incorporate storage areas, mudrooms and kitchens to cater for our homegrown produce.

Low tech sustainability

Low tech sustainability is tested, reliable, robust, and cost-effective. Good design principles and low tech sustainability has minimal impact on the cost of building your home but has a great benefit to us as users, reduces running costs and reduces the impact on our environment.

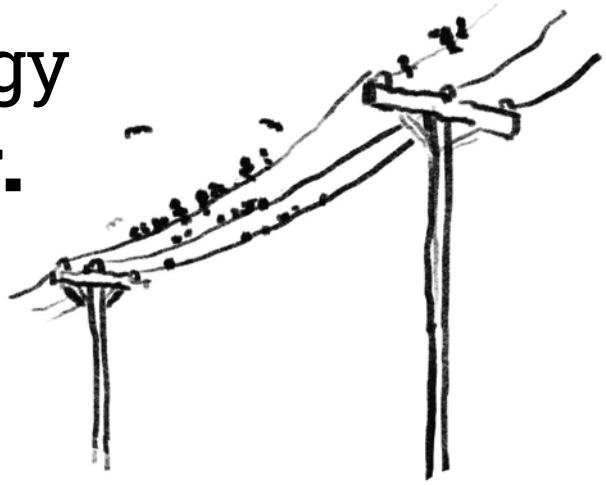
"Let's speak the idea of enough... Enough is a hard line in the sand, whereas 'more' is like the horizon. Sure you can run towards it, but you are never going to reach it. It's just there, slightly out of reach, but you'll get sweaty and tired trying to reach it. Let's work towards enough instead of more."

'Enoughness'

We embrace the concept of enoughness. It doesn't mean going without, it means clearly understanding your values and requirements and considering what you need to fulfil them and what is extra.

This is important when considering the inclusions for your home. The bigger it is, or the more you include, the more it is going to cost. And, the cost of anything is how much life you are willing to exchange for it.

2.3 Operational energy & **low-impact living.**



Australian households are directly responsible for about 20% of Australia's greenhouse gas emissions. The energy consumed by households is what we call 'operational' energy.

We can significantly reduce our operational energy usage through good design, the use of energy efficient technologies and behaviour and lifestyle choices that focus on energy conservation.

Here are some simple strategies for low impact living and how to reduce operational energy in our homes:

Design.

If you are in the position of building or renovating a home, the key to creating a low-impact home is in the initial design. This includes house size, orientation, incorporation of passive solar design principles, design longevity and adaptability to evolving needs and functions (such as growing families, shifts in technology and lifestyle).

Consider the following:

- Appropriate insulation, improved glazing and airtightness (for reducing drafts and warm air leakage) make heating and cooling more efficient (also helps in removing heavy demand at night and in extreme temperatures.)
- A bigger house will always use more energy, really consider how much space you need.
- If installing an in-built bath, always insulate around this, it will keep your bath water warmer for longer.
- Consider the height of ceilings, high ceilings are nice, but these spaces take more heating.
- An open plan house looks great, but it will take more energy to heat the space, not to mention any additional energy needed for active systems to circulate the heat throughout the area.
- Smaller spaces that can be zoned will use less energy.

Heating & cooling.

Heating and cooling is the biggest energy user in the daily operation of the building, as it accounts for 40% of household energy consumption. However, very little energy is required to make a well-designed house comfortable, and mechanical heating and cooling should never be a substitute for good design.

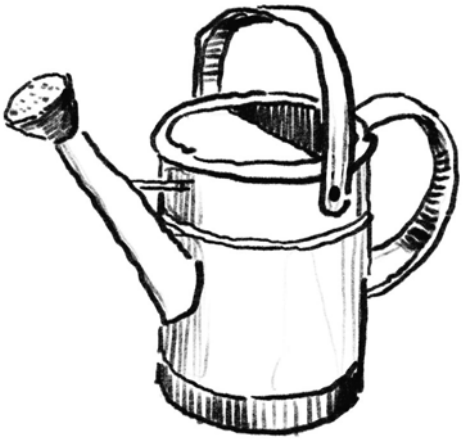
Consider the following:

- Install space heating or cooling only in rooms that require it. If it is a centralised system, ensure it is zoned.
- Avoid using a clothes dryer and instead air -dry clothing.
- Embrace warm natural fibre clothes to feel warmer before turning up the heating.
- The colour of surfaces can also change how well an object reflects or absorbs heat.
- Install good quality curtains/blinds to keep heat in at night.
- Seal up drafts around windows and doors- use a door snake!
- Heat zone your home; a heavy-duty curtain in a hallway can make a significant difference.
- It may seem very obvious, but ensure that doors and windows are closed when it is cold.
- Make the best use of cross-ventilation on hot days, consider investing in fly screens if mosquitoes are a problem. If you are out at work all day in warmer seasons, keep the curtains closed to mitigate unwanted solar gain.
- Landscape to help support the heating and cooling functions of a building. Prune back trees that could be letting in more natural light. Solar gain or shading, reducing air temperature externally around the house for natural cooling through cross ventilation or mitigating/directing wind.

Heating water accounts for 21% of the energy used in the average Australian home.

Hot water.

- Reducing hot water use and using renewable energy sources to heat water are effective ways to reduce your environmental impact.
- Turn the hot water thermostat down to 50 degrees instead of 60.
- Always wash clothes in cold water.
- Consider how much you and your family shower and for how long.
- Ensure the dishwasher is full before turning it on (if you don't make enough dishes to fill it before you run out of cutlery just hand wash).
- Don't rinse dishes in hot water.



- Don't brush your teeth in the shower (although we know this is a time saver and is nice for lots of people!)
- Share a bath - some people are not ok with this, but it is a definite hot water saver.

Lighting & appliances.

There is an unspoken infiltrator in our homes, adding unwanted dollars to our electrical bill and adding to the operational energy of our homes. It goes by the name of 'standby'.

A lot of appliances and products still use a considerable amount of energy even when they seem to be off, but in reality, they are in 'standby' mode.

Turning off your television with your remote is a classic example of standby power at play.

After watching television, it is best to switch your TV off at the power-point. Toothbrush chargers, phone chargers, kettles, battery charged vacuum cleaners, the list of standby power consumers goes on. Even your desktop computer uses power even when shutdown! To take your operational energy in hand, switch appliances off at the power-point when not in use.

Some other strategies to consider are:

- Design the home to maximise the use of daylight so that electric lighting is not required during daylight hours.
- Implement energy efficient lighting and appliances.
- Plug-in appliances can be inefficient. Try to turn off power-points.
- "Batch bake" if you turn the oven on to make a cake, plan to bake something else you need at the same time.

Renewable energy.

- Using renewable energy sources such as solar or wind, which produces limited greenhouse gas emissions.
- Energy storage - such as hot water or solar batteries.

Solar PV system to offset energy from the grid (some advanced systems take advantage of load shifting - having hot water and some appliances draw energy when there is a surplus being produced).

Here are some other general lifestyle behaviours to consider, which significantly help to reduce operational energy and footprint:

- Travelling to and from work by either walking, riding a bike, car-share, public transport, or an electric vehicle over using a vehicle as a single passenger.
- Buy locally manufactured products when possible.
- Utilise natural materials that are low in embodied energy and sequester carbon.
- Source food grown in the local area/ region, in season and sustainable low impact farming. Or consider growing your food - in your backyard or a community garden.
- Compost food waste, and reduce your amount of food waste by only using what you need.
- Refuse, reduce or recycle single-use products that end up in landfill. Avoid using plastic products where possible.
- Choose 'compostable' items such as coffee cups/food packaging over 'biodegradable' items. Biodegradable breaks down into little pieces, whereas compostable completely breaks down in soil. Or even better, bring your reusable coffee cup or container!
- Capture own water for domestic use to avoid reliance on mains water which has operational energy to supply water.

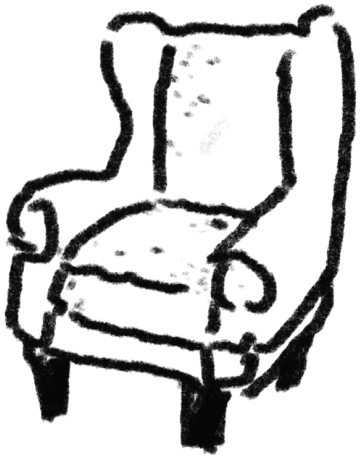
In a time where the realities of the climate crisis are intensifying, and natural disasters seem to be part of our annual calendar, any of us who are in the privileged position of living in our own home, need to respect that we each have a responsibility.

To live with intention and consideration in the choices that we make. It can be hard to comprehend what effect we have as individuals are having on the environment, especially in our own homes.

Still, we hope the information here can help de-construct and define our own footprint we are leaving on the earth. By defining our footprint, we can move forward with responsibility and intention.

"We're *not going to ever* be able to achieve the environmental gains we're seeking, **while still expecting our lives to be the same.** We're going to have to give up a lot. The secret is that a lot of that, we're not actually going to miss." - Jay Austin.

3.0



Resourceful.

‘Simplicity is about subtracting the obvious and **adding the meaningful.**’
– Josh Maeda

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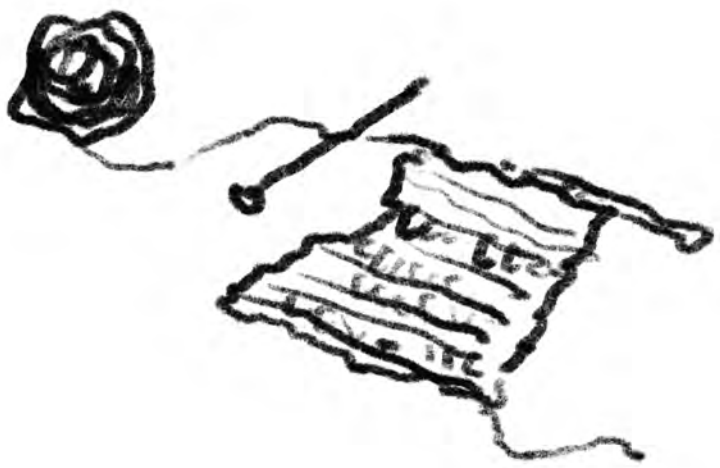
3.1 Due **diligence.**



What is Due-diligence when purchasing a property?

Due diligence is the investigation or exercise of care that a reasonable business or person is expected to take before entering into an agreement or contract with another party, or an act with a certain standard of care. It can be a legal obligation, but the term will more commonly apply to voluntary investigations.

Or in other words, it means: *taking the responsibility to find out precisely what you are buying, so you don't get yourself into a tricky situation.*

Due diligence is essential when considering purchasing any property. There are lots of things about the property that are not evident by looking at it or that anyone will tell you about. It is your responsibility to undertake this when considering forming a contract.

There are a lot of things about a property that you may not know that can significantly affect what you can and can't do on it and how much these things will cost.

Due diligence includes but is not limited to the following:

- Property boundaries
- Details of the Certificate of Title
- Details of any easements, covenants or right of ways
- Existing service connections
- Existing legal entrance
- Existing council or infrastructure owned services on the site
- The zoning and any overlays on the property
- Development use and standards for the property
- Building envelope restrictions
- Any other council or planning scheme restrictions
- Soil contamination and type
- Landslip or cast areas
- Natural waterways
- Bushfire, flood or additional natural risk
- The existing condition of any structures/ building inspection
- Legal approval of any existing structures
- Heritage listing or within a heritage precinct
- Details of a strata title or body corporate arrangements
- Contract obligations

As well as the set list above we suggest you also check out the following to inform your decision to go into a contract:

- Slope and orientation and how will this affect your costs and quality of living
- Is the property suitable to build on?
- Will the existing structures be compatible with the alterations and or additions you plan?
- How will the condition of the land affect your building price?
- How will the condition of the existing structures affect your cost of alteration?
- Does the property have existing access, if not, how will this affect your costs?
- Does the property have access to services, if not, how will this affect your costs?
- Potential development of neighbouring properties
- How much vegetation needs to be cleared, and how will this affect your costs and the protection of ecosystems?
- Analysis of your total budget required to cover land, construction, **fees and expenses to carry out your project**

You can refer to our *FINDING A BLOCK OF LAND CHECKLIST* or our *FINDING A HOME CHECKLIST* on our *Resources Page* on our website to assist you in making an informed decision on your purchase.

3.2 **Loans.**

Building a home, buying land or buying/ renovating a house is a significant investment and is a daunting process for most of us.

At Designful, we think it is essential to understand and be aware of these processes from the beginning, to help you feel empowered in making decisions and going forward towards your future home. Therefore, we have put together a resource for you containing useful information on the process of loans for building, renovating and for owner builders.

It is important to note that all the information we have provided is merely a general guideline and secondary information about how loans tend to work. More detailed and personalised information regarding the loans you require is best sought from your preferred lending institution directly.

Construction loans:

A construction loan is for anyone wanting to build their own home or renovate their existing home. It does not work in the same way a regular home loan would work when buying an already established property.

A construction loan covers the expenses you incur as you build your home. The bank/ lender does not give the amount estimated for what your home will cost as a lump sum. Instead, you will receive portions of your loan in the progression of the build - what is known as progressive payments or draw-downs.

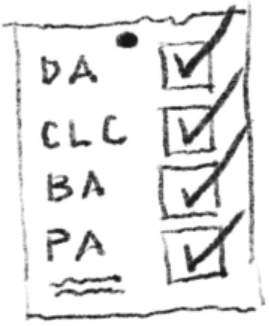
The builder will outline the total cost required to construct your home, and once the construction loan is approved, payments are made to the builder during each stage of building/construction. Generally, a bank will require a fixed-price contract with a registered builder to approve your loan.

It is essential to ascertain the loan approval process from the bank, as you want to ensure the house/renovation you are designing will meet the requirements.

Put simply; you want to make sure you are meeting the requirements and avoiding over-capitalising.

See Part 5.2 — Activity 2. for our list of useful questions to ask your financial advisor / bank.

3.3 Building **stages.**



A building project has several steps (this can vary from project to project). A general breakdown of each stage is as follows:

Preparation - Includes plans,permits, connection fees, insurance etc.

Base/Slab - Includes the foundation, concrete slab, footings, installing plumbing, waterproofing foundation etc.

Frame - The house frame is completed and approved.

Lock Up- Includes external walls, windows and doors, insulation, roofing etc. (this stage receives the largest portion of the progress payments- 35%).

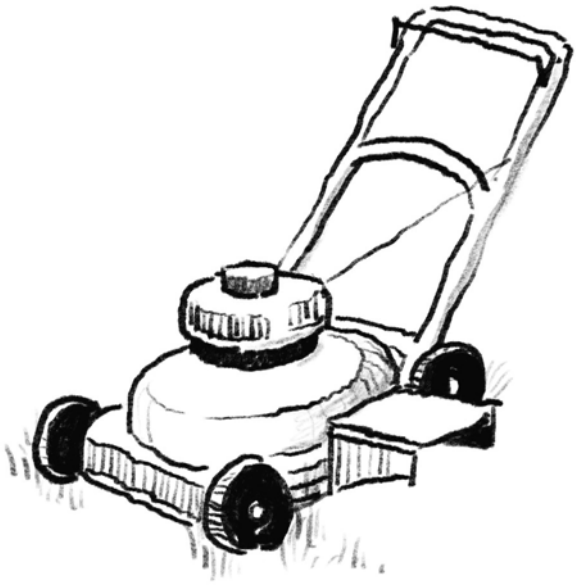
Fit-out/Fixing - Includes internal fittings and fixtures, cupboards/joinery, internal claddings, appliances, plumbing and electrics, painting, etc.

Completion - External tidying up, such as fencing and site clean-up. Builders receive final payment.

Please also note that some builders will require a deposit before starting.

Interest:

With a construction home loan, the lender will only charge interest on the amount of the credit that was drawn at a particular stage of construction.



Owner Builder loans:

Being an owner-builder can be an incredibly empowering experience, being able to guide the process and shape your own home.

However, we think it is essential that anyone considering this needs to be aware of and understand the additional requirements of your chosen bank and costs involved. e.g. preparing the detailed documentation, consultant and approval fees, insurances, stages of construction and permits etc.

Please note that there will be different requirements for Loan Approval if choosing to be an owner-builder on your own project.

Certain banks require more documentation for a construction loan from owner-builders than from a registered builder.

This should be something you contact your bank about directly. These requirements include but are not limited to full documentation of your design, insurance papers, the outline of your progressive payment and stages of work schedule.

There are important considerations for becoming an owner-builder which will affect the success of your project.

Some of these considerations include:

- Time: Do you have the time required to devote to a building project? We don't believe it's a reasonable assumption to plan to (physically) build your home on weekends and after hours unless you are prepared for it to take some years. It's a full-time job!
- Responsibility: You are responsible for everything related to the project, and this includes organising trades etc. This undertaking requires a lot of research, learning, planning, and you must form an excellent team of professionals to assist you.
- Confidence: You are taking on the responsibility of a registered builder- so you need to have the confidence that you have the required skills and building experience to undertake the project. If you are also taking on the project management side of the project, you need to be available and ready to make decisions in a timely manner to keep the program running on time and have good, clear communication skills.
- Finance: The idea of saving money as an owner-builder sounds pretty good. It's important to be aware that some banks will only finance the construction of homes built by licensed builders. How you are going to fund your construction will also play a part in your planning. Generally, banks will only lend 60% of the build cost for an owner-built project, assuming you get a favourable valuation of the finished home. Banks will also want a full costing breakdown of the construction costs. We recommend you seek early financial advice on this from your preferred professional to inform your planning.

While this information is only a starting point, we hope it provides you with the tools to start up conversations with banks about their process and how their loans work.

At Designful, we believe this is a process that shouldn't be rushed, do your research and take the time to have these discussions with the bank.

Building a home, buying land or buying/ renovating a house is one of the biggest investments any of us can make.

Give it the time its due, so that at the end of the process, you feel empowered in going forward towards your future home.

3.4 Being an **owner-builder.**

We believe that the greatest gain from being an Owner-Builder is the feeling of achievement from building your own shelter, along with what you learn through the process.

It is essential to understand that building a dwelling is a complex venture and best undertaken by professionals in the industry or people that have well-honed practical or management skills.

Before deciding to go down this path, it is important to understand what your limitations are, what you will outsource, what your budget is and if it's realistic, and form a team of professionals around you to assist in achieving your goals.

We find that most owner-builders greatly overestimate the cost savings and underestimate the time involved to achieve their goal.

We also find that lots of potential owner-builders just "don't know what they don't know."

THE SCOPE OF BEING AN OWNER BUILDER:

The areas that need to be understood and completed properly include but are not limited to:

- Choosing an appropriate site
- Understanding and complying with planning and building regulations
- Creating a brief that outlines your values aims and scope of works
- Design that is fit for site and use
- Obtaining the correct approvals
- Undertaking construction that meets NCC and Australian Standards
- Obtaining the proper insurance during the build
- Putting in place and maintaining OH&S during the build
- Managing correct regulatory inspections during building
- Construction administration compliance
- Managing trades and planning ahead
- Managing costs and budgets

The first task as an owner-builder is purchasing an appropriate block of land and the understanding of planning and building regulations.

Your property will have a significant impact on the cost of your build.

Things such as slope, existing services and new accesses need to be taken into consideration, and we believe you need to look at these factors carefully.

A cheaper block of land that may be steep will probably cost you much more to build on.

The zoning and planning restrictions of the property will impact your build and costs. Most properties have *permitted uses*, as well as setbacks and size restrictions that need to be complied with.

Environmental and *Bushfire overlays* can add cost and complexity, as can *heritage*. We suggest you undertake thorough due diligence when purchasing land.

COSTS:

How much a build will cost is one of an owner-builders' primary concerns. Costs associated with a new home are broken into various parts. Design, consultants and approval fees, materials, labour, overheads, subcontractors and statutory sign-offs.

‘My goal is no longer to get more done, **but rather to have less to do.**’

– Francine Jay.

3.4 Being an **owner-builder:**

Pre-construction stage—design, consultants & approvals.

Generally, in the pre-construction stage, the area that owner-builders aim to save money is in the design process.

Yes, you can design your own house but, to gain approvals, you will need a *registered designer* to prepare and take responsibility for the design documents.

A suitable registered designer is trained and has much experience in designing buildings that are fit for the site and the users, that comply with the many planning and building code regulations, that perform well functionally and thermally and that are buildable within the owners capacity.

You can save yourself much time and complexity by working closely with a registered designer to achieve your vision in a way that is within your capacity and budget, that also meet the approval criteria.

The most effective way of making the design and approval process efficient and streamlined for you is to have a well-formed brief and budget for your team of professionals to work with.

A helpful and experienced team of professionals and a clear and detailed brief is your best bet for achieving a home that meets your criteria and is within your capacity.

As a general rule, you need to expect to allow nominally 10-14% of the *market construction cost* for your design fees.

Consultants and approval fees are additional to design fees and are subject to your site.

Construction Stage (materials, labour, overheads, subcontractors and statutory sign-offs)

In the construction stage, the areas that most owner-builders aim to reduce cost is in labour and project management.

As a standard, labour consists of 17- 22% of the overall build cost, whereas construction management and builder's margin make up roughly 10% (these figures are highly dependent on the size, type and complexity of your project).

So, it is possible to save 10 - 30% in construction costs, depending on how you manage your project; however, you also need to consider time.

They say 'time costs money' and generally an owner-built project will take significantly longer than a standard registered-builder built home (2 - 5 times longer).

Registered builders have many years of experience, vast knowledge of the Australian Standards and NCC, tight systems and established supplier relationships that streamlines a build process.

Extended construction timelines mean you will be incurring additional costs associated with your property for a more extended time, before you can live in your new home.

Additionally, the loss of income while you undertake your build needs to be considered. A registered Builder takes approximately 6-months to build/complete a 'typical family home' construction. Currently, the median cost per m2 for *custom designed* built homes is between $3000 - $3500.

It is possible to save costs on materials by sourcing second-hand, recycled, etc. materials yourself. However, it is crucial to keep in mind that all structural components of your home will need to meet material statutory codes.

Sourcing and using recycled or upcycled materials generally increases setup and labour time significantly, often outweighing the financial savings made with the materials.

We don't believe it is a reasonable assumption to plan to (physically) build your home on weekends and after-hours unless you are prepared for it to take some years.

It's a full-time job!

If you are only taking on project management of your build, this is still pretty much a full-time job, and you need to be available and ready to make decisions in a timely manner to keep the construction program running on time.

If the Concreter is pouring concrete on-site and they are not sure where a floor waste needs to go, this needs to be acted on straight away. Slow decision making costs time and money.

3.4 Being an **owner-builder:**

Funding your build.

How you are going to fund your construction will also play a part in your planning.

Generally, banks will only lend 60% of the build cost for an owner-built project, assuming you get a favourable valuation of the finished home.

Banks will also want a full costing breakdown of the construction costs. We recommend you seek early financial advice on this from your preferred professional to inform your planning.

We suggest that if you would like to take on the commendable and rewarding task of being an owner-builder, you need to be realistic about your skills, capacity, costs and time.

Listen to professionals, personally upskill and be prepared to invest in / outsource the critical tasks that you cannot directly complete yourself.

Get clear on what your costs are going to be from the outset and always have a contingency amount set aside (nominally 20% of your budget).

One of the responsibilities you are taking on as an owner-builder is managing costs, and you should be the one telling your team what your budget is, what m2 rate you are aiming for and how you are going to achieve it.

We suggest that, from an early stage, you should use costing tools and seek professional quotes for all elements of your project.

Your project budget needs to be derived from the sum of your brief and design, site conditions, statutory fees, materials, subcontractors, etc.

We suggest you get information on potential costs before you start designing your home.

If these initial estimates exceed what you wish to spend or can comfortably borrow, then your project brief needs to change.

Many of the costs in building are non-negotiable and just 'cost what they cost'.

As an owner-builder, you need to recognise these fixed costs and understand that you may need to compromise or go without certain aspects of your build, instead of 'cutting corners' or just hoping for the best.

We suggest you have clear values around what lifestyle your home needs to support and what your essentials are to achieve this.

Cutting corners or hoping you can bring it in on budget is not a good way to meet your financial constraints. It sets yourself and all others involved with your project up for a stressful and problematic process.

Owner-building can be a very rewarding process if you plan well, are realistic in regards to your capacity and costs, ensuring you have a good team involved... and you are prepared to work hard!

Owner-building is not the answer to getting more for less money.

Owner-building is an opportunity to use the money you do have to its greatest potential and to create a home that is truly in line with your family's values and lifestyle.

If planned and executed with care, it is an experience of massive personal growth and creative satisfaction.

3.5 Process **& approvals.**

If you're building a new home or renovating an existing one, it is essential to understand that an important stage of the process is getting approvals and permits for your build.

There are three general types of approvals: planning, building and plumbing.

The type of design/build will determine what approvals you will require and whether you need approvals or not.

In this resource, we give an overall explanation of the approvals process, what is required, and who is involved.

Please keep in mind the information we've provided is general.

For more specific and detailed information on the approvals process, it is best to discuss this with your local council or a Building Surveyor.

Planning Approval:

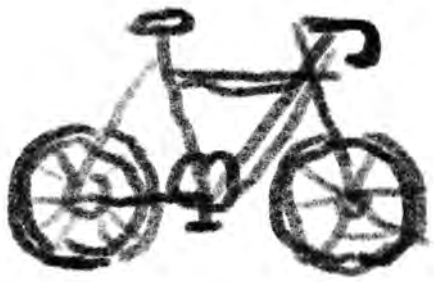
Once you have a concept design for your proposed build or renovation, the next step in the process is to prepare drawings and apply for a development (planning) approval which is reviewed by your local council.

The planning approval proves that a project is appropriate for the street, adjoining properties and visual impact of the site and meets the stipulations of the planning scheme.

Details such as vehicle access, parking, site drainage and waste removal are taken into consideration.

To get an idea of whether your project will trigger a planning application, you can inquire with your local councils' planning department.

Timeframe: A planning approval requires you to obtain building approval for the project within two years. If a building approval is not obtained within this timeframe, you will have to apply for an extension on your planning application. Otherwise, it will expire, and you will have to submit a new application.



A planning approval allows you to use your site for what you intend to build; however, to build your proposed project, a building permit/approval is required.

Once a DA is issued, the design documentation can move forward in preparation of a building and or plumbing approval.

Before applying for a building approval or permit, the design documentation of the project must first receive a Certificate of Likely Compliance. A Certificate of Likely Compliance (CLC) is undertaken by a Building Surveyor.

People often ask, what is a Building Surveyor? Building Surveyors ensure that built structures meet nationally consistent standards of construction and are fit for their intended purpose.

A Building Surveyor will review and assess the design documents of your project and assess its construction against the National Construction Code and Building Act 2016, to ensure it is fit for purpose.

If the project meets the requirements, the Building Surveyor will issue you with a Certificate of Likely Compliance (CLC).

Other procedures that must be approved before a BA application include, but are not limited to:

- A soil and wastewater assessment/ design
- Taswater application
- Bushfire Assessment and BAL report
- Natural Values Assessment
- Heritage Assessment
- Engineering Design and Certification
- Energy Efficiency Assessment
- Details and working drawings are completed
- If demolition is required, this may need approval as well.

Building and Plumbing Approval:

Once these and the CLC has been issued, the design documentation can then be submitted for a building and or plumbing approval.

A building approval indicates a development has been certified by a Building Surveyor, and your local council, and is now ready for construction.

All building and plumbing work is regulated by the Building Act 2016.

The building and plumbing approval process is separated into different categories depending on the risk level:

- Low-risk work: Owner responsible, no plans or CLC required
- Builder work: Builder responsible, no plans or CLC required.
- Notifiable work: Building surveyor responsible, plans and CLC required
- Permit work: Building surveyor responsible, plans and CLC required, building permit required.

The difference between notifiable work and permit/approval work is that although both of them require a CLC, only permit work needs a permit from your local council.

Notifiable work just needs to be certified by the Building Surveyor, and the council notified.

The Building Surveyor generally determines the risk category.

Depending on the works involved, you may not need plumbing approval. Your local council should be able to identify whether your project requires a plumbing approval or not.

Timeframe: Once the building approval has been issued, construction of the proposed project must begin within one year. If construction does not start within this timeframe, you will have to apply for an extension on your building application. Otherwise, it will expire, and you will have to submit a new application.

Once all of these approvals are in place, the building surveyor will authorise building work to commence, and construction of the project can begin.

For more useful information on embodied energy, go to **Part 5.4—Useful Resources** for some helpful websites.

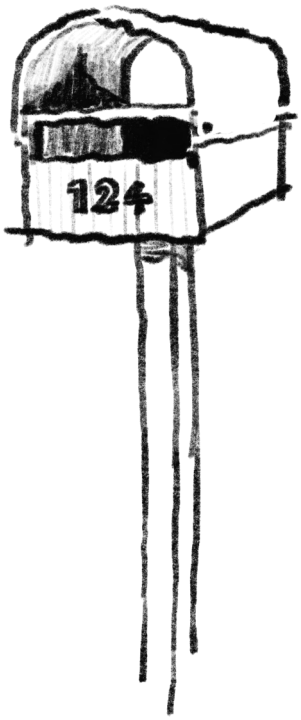
‘Simplicity is about subtracting the obvious & **adding the meaningful.’**

– Josh Maeda.

4.0

Helpful.

- **4.1** Embodied energy & materials
- **4.2** Materials
- **4.3** Interior materials
- **4.4** Flooring
- **4.5** Benchtops / surface
- **4.6** Embodied energy materials list



‘Nature is not a place to visit. It is home.**’ – G. Snyder**

4.1 Embodied energy & materials.

What is embodied energy?

Embodied energy is the total energy required for the extraction, processing, manufacture and transportation of building materials and products supplied for construction.

The energy consumption of this process produces CO2, which contributes to greenhouse gas emissions. Embodied energy gives an indication of the overall environmental impact of building materials and systems.

In Australia, buildings are responsible for one-quarter of all greenhouse gas emissions.

Embodied energy only considers the 'front-end' aspect of the impact of building material. It doesn't include the operation or disposal of materials.

How is embodied energy measured?

Embodied energy is measured as the quantity of non-renewable energy per unit of building material, component or system.

It is expressed in megajoules (MJ) or gigajoules (GJ) per unit weight (kg or tonne) or area (m2/m3). However, the process of calculating embodied energy is complex and involves numerous sources of data.

4.2 **Materials.**

Timber has a relatively low embodied energy, through the process of extracting and transporting the raw product (trees), to then be milled then dried. Drying can be natural or kiln-dried.

The advantage of timber as a building material is that trees store approximately 250kg carbon per m3, which offsets the total embodied energy of the product.

Storing carbon is another way to assist in managing the embodied energy of materials. Carbon storing building materials are sourced from harvested plant-based products, such as wood, straw, hemp, bamboo and cork.

Before being harvested, these materials capture and 'store' carbon through the process of photosynthesis, drawing down atmospheric CO2 and storing the carbon in the plant's fibres.

Generally, the carbon in plants is released back into the atmosphere when the plant either decomposes or burns. But if the plant material is used in building construction, we **sequester** that carbon into a building for a long time.

"It's the simplest form of carbon capture and storage; the plants do all the work of pulling CO2 out of the air, and we put them into buildings for a long time"- Chris Magwood, Zero House.

Not only is it important to aim for using low embodied energy materials for building construction, but also ones that sequester carbon. However, it is also important to ensure that the wood comes from sustainably managed plantations.

Metal and steel materials require a significant amount of energy to produce and manufacture, and therefore, have a high embodied energy. Reducing the amount of these materials is preferred, but in some cases, this isn't possible. The advantage is that these products can be recycled and have longevity.

Plastic products have a high embodied energy as they require extensive amounts of energy to be produced and are made from fossil fuel waste. Plastic products also cannot be easily recycled.

The embodied energy of materials used in the interior, such as flooring or benchtop surfaces, also should be taken into consideration.

Plasterboard has a low embodied energy. It consists of sheets made up of: a core of cast gypsum plaster plus fillers, and a paper lining.

Although Gypsum is a mined mineral, plasterboard can be recycled and is biodegradable in soil.

Natural Stone, such as marble, granite and slate, have a low embodied energy. Stone is a natural product that is quarried or sourced from gravel areas (such as river-beds.) It can be reused and recycled by being crushed and used as aggregate.

Why should we reduce embodied energy?

For most building materials, the significant environmental impacts occur during the initial processes.

Energy consumption during manufacture can give an approximate indication of the environmental impact of the material.

The total amount of embodied energy may account for 20% of the building's energy use, so reducing embodied energy can significantly reduce the overall environmental impact of the building.

How can we reduce embodied energy?

Buildings should be designed and materials selected to balance embodied energy with factors such as climate, availability of materials and transport costs.
When selecting building materials, the embodied energy should be considered with respect to:

- The durability of building materials.
- Sourcing locally manufactured products and materials is substantially better than sourcing imported.
- Use of recycled materials. Some products have a recycled portion of material added to virgin material, to help reduce the overall embodied energy. Modifying or recycling material can be better than demolishing or adding new products.
- Maintenance. If a product requires regular maintenance to keep it looking and performing at its best, then this increases the overall carbon footprint over the life of the building.
- Specifying standard sizes of materials to avoid wastage.
- Selecting materials that are manufactured using renewable energy sources.

- The size of the build is especially important. Opting for a small building footprint and questioning what is truly necessary will reduce the overall amount of materials needed to construct.

Alternate types of materials are gaining more traction for their lower carbon footprint and environmental impacts. Some of these include:

- Hemp: Hempcrete, Hemp fibre
- Mycelium
- Wool
- Cork
- Clinka
- Aerated Concrete
- Rammed earth

Here at Designful, we are not only conscious of the operational energy of homes and how they perform after construction is complete, we are also mindful of what building materials and products we suggest or select for our clients.

The impact these have on the overall energy consumption of the building and, in turn, on the environment is important to us.

We aim to suggest low embodied energy or carbon-storing building materials, as well as ways to reduce overall embodied energy, to clients where possible and if applicable.

In a time where the realities of the climate crisis are intensifying, and natural disasters seem to be part of our annual calendar, any of us who are in the privileged position to be building need to understand we have a responsibility to build/renovate with intention and consideration.

It can be hard to comprehend what effect we as individuals are having on the environment, but we hope this information can help deconstruct and define the footprint we are leaving on the earth.

By defining our footprint, we can move forward with responsibility and intention.

4.3 Interior **materials**

Listed are some common materials used in interiors.

Plasterboard

- Plasterboard consists of sheets made up of: a core of cast gypsum plaster plus fillers, and a paper lining.
- Gypsum is a mined mineral. 'There is also a potential for damage to local ecosystems during extraction.'
- Cost: low to medium.
- Has a low R-value and provides little thermal mass.
- Can be recycled, reused (if not damaged when removed), and is biodegradable when in contact with soil. It releases gas during decomposition, although it is not defined as hazardous waste.

Wood Composites

- Includes particle boards, strandboards, hardboards, and medium density fibre boards (MDF).
- Used as sheet flooring or wall lining.
- Wood composites are manufactured from renewable forest resources, and lower grade wood products or waste wood products.
- Costs: low to medium.
- Generally not recycled, but may be reused if sheets remain intact.
- Generally low embodied energy and stores carbon.
- Can be high in VOC's and contain formaldehyde (carcinogen).
- Wood composites are susceptible to moisture damage and are not super durable.

4.4 **Flooring.**

Ceramic Tile

- Tiles consisting of fired clay with an applied glaze.
- Generally imported from Europe or Asia.
- Input energy does vary with the tile manufacturing process.
- Some glazing materials and pigments may impact on the environment. There are also emissions from kilns.
- Costs range from very low to high. Tiles imported from Asia are generally cheaper than tiles imported from Europe.
- 20+ years of durability.
- Generally not salvageable for reuse.

Carpet

- Carpet can be made from wool, nylon, polypropylene, polyester or a blend of fibres.
- Wool carpet is a natural, durable and premium product. A much more sustainable product than synthetic carpets. However, a key concern with wool production is the environmental impact of the scouring process. Wool carpet can also be recycled into insulation products.
- Cost- Wool is more expensive than synthetic fibres.
- Synthetic carpets are derived from petrochemicals, although some are now made from recycled fibres.
- Nylon is the most common of the synthetic fibres. Has a very good wear resistance, however, can stain easily unless treated.
- Acrylic gives a similar look and feel to wool but at a lower cost. Moisture and mildew- resistant.
- Polypropylene carpet is lower in cost. Not easily dyed- so manufactured in the final colour. Does not wear as well as wool or nylon.
- Emissions vary, but emissions of CO2 and other greenhouse gases are common in the manufacture of petrochemical-based products. According to manufacturers of carpets that use 100% recycled synthetic fibres- ‘manufacturing these products produces just half as much CO2 as the manufacture of other synthetic carpets.’
- Both wool and synthetic carpet can be reused (if in good condition). Wool will degrade, synthetic will degrade very slowly, and may release toxins.

Vinyl

- Vinyl and synthetic rubber flooring are made up of petrochemicals. Vinyl can be as much as 55% or as little as 11% PVC, and also contains fillers, plasticisers, stabilisers and pigments.
- Because of the plasticisers used in the manufacture of vinyl flooring (to give it flexibility), has concerns as to the potential harmful health effects. Vinyl chloride is a known human carcinogen (causing a rare liver cancer) because the plasticiser contains phthalates which may leach out.
- Reuse is generally not possible. Some vinyl may be recycled. Vinyl and synthetic rubber are petrochemical-based materials and release greenhouse gases as they eventually decompose.

Linoleum

- Linoleum is a natural flooring product based from linseed or vegetable oil, compressed cork and wood flour, resin binders and pigments on a jute backing.
- It is a natural and inert material.
- Imported from overseas.
- Can not be easily recycled as it is made from so many ingredients. Linoleum is bio -degradable and doesn't create toxins as it degrades.

Cork

- Cork can be used for floor or wall finishes.
- Generally imported from Spain and Portugal- High travel miles.
- Cork is a natural product and comes from sustainably managed forests. 'Bark is carefully stripped from the trunks of the corks oak at approximately nine-year intervals (without damaging the tree) and ground into granules. The granules are then compressed with special glues at high pressures and temperatures into sheets, planks and tiles.'
- It is durable and will have 25+ years in domestic use. Cork that is adhered to a substrate will be difficult to reuse, although may be able to be recycled, and will slowly decompose over time.
- Up-front costs are relatively high. Low embodied energy and stores carbon.

4.5 **Benchtops / surfaces.**

Natural Stone

- Stone is a natural product that is quarried or sourced from gravel areas (such as river beds.)
- Quarrying of stone creates damage to local ecosystems during extraction.
- Stone can be sourced both locally or imported.
- Stone has high durability.
- There are typically no emissions from the stone (granite may emit low-level radioactivity).
- Can be reused if removed carefully. Stone can also be crushed and reused as aggregate.

Laminate

- A manufactured resin impregnated decorative paper, applied to an MDF backing.
- Contains plastic, resin and often formaldehyde.
- Less durable than natural stone or engineered stone.
- Non-recyclable.
- High embodied energy.
- Low cost.

No material you choose is going to be 100% perfect. Without feeling overwhelmed by this information, do your best to select materials that are close to the natural source, local, and can be reused or recycled.

The information provided is to help empower you to make more informed decisions about the materials you choose for your home.

4.6 Embodied energy **materials list.**

Below is a list of common building materials and the embodied energy of each material. **Embodied energy is the total energy required for the extraction, processing, manufacture and transportation of materials and products, in this case supplied for building and construction.** Embodied energy is measured as the quantity of non-renewable energy per unit of material, component or system. It is expressed below in megajoules (MJ) per unit weight (kg). For this list, we have considered that low embodied energy materials have an embodied energy of 10 mj/kg or less, in relation to the material density that would be used in an average build. **These materials have been highlighted in green.** Materials with an embodied energy of 50 mj/kg or more have been highlighted in orange with a hatch through.

What must be taken into consideration is the embodied energy in relation to the material's density. For example, in the list below, concrete shows a low embodied energy. Because of the material's density, for 1kg of concrete, the volume is very small. This means, the amount of concrete required for an average building is significant, upwards of 1000kg. Therefore, the low embodied energy figure when applied across the total cubic area of concrete actually represents a high embodied energy total.

To note: Aluminium frame shows a *high embodied energy of 170 EE Mj/Kg*, but the volume of aluminium in a window frame is quite small. If thermally broken it performs well for thermal efficiency and has little to no ongoing maintenance. Aluminium can also be recycled.

As well as the embodied energy of each of these materials, other aspects need to be considered, such as cost, performance, repurpose, sourcing and longevity. We have used symbols to represent these areas of consideration where applicable, please refer to the adjacent key:

KEY.

- CARBON STORE
- LOW TRAVEL MILES
- DURABILITY
- REUSEABLE
- $ LOW COST
- $$ MEDIUM COST
- $$$ HIGH COST

Embodied Energy Material List.

Exterior Materials.		EE MJ/kg	
Concrete.	Pre-Cast	1.5	$$
	In-situ (reinforced)	2	$
	Aerated Concrete	3.6	$$
Wood.	Stores approx. 250kg/m³		
	Softwood	7.4	$
	Hardwood	10.4	$$
	Particleboard	8	$
	MDF	11	$
	Plywood	10.4	$$
	GluLAM	12	$$$

Exterior Materials.		EE MJ/kg	
Sheet Products.	Plasterboard	6.75	$
	Fibre-cement	10.4	$$
	Paint	21	$
	Polycarbonate	112.9	$
Windows & doors.	Glass	12.7	$$
	Aluminium Frame	170	$$
	Timber Frame	10	$$$
	Double-glazed window - aluminium frame.	88.5	$$

*all costs of materials can vary.

Embodied Energy Material List.

Exterior Materials.		EE MJ/kg	
Masonry	Concrete block hollow-core 200x400mm	1.5	$
	Concrete block 200x400mm core-filled reinforced.	1.5	$$
	Brick	3	$
	Rammed earth	0.45	$$
Steel / Metals	Mild steel	20	$
	Galvanised steel	38	$$
	Aluminium	170	$$
	Sheet metal cladding/roof	18.8/20 galv.	$$
	Stainless	56.7	$$$
	SHS	21.5	$
Other	PVC (general)	80	$
	PVC (pipe)	67.5	$
Insulation	Glasswool: wall	28	$$
	Polystyrene (XPS)	88.6	$

*all costs of materials can vary.

Embodied Energy Material List.

Interior Materials.		EE MJ/kg	
Flooring	Carpet (Nylon)	148	$$
	Carpet (Wool)	106	$$$
	Carpet (polypropylene)	95.4	$
	Linoleum	116	$$
	Vinyl	79.1	$
	Cork	4	$$$
Surfaces.	Stone (granite)	11	$$
	Stone (marble)	2	$$$
	Stone (slate)	1	$$
	Stone (ceramic)	6.5	$$

*all costs of materials can vary.

For more useful information on embodied energy, go to **Part 5.4—Useful Resources** for some helpful websites.

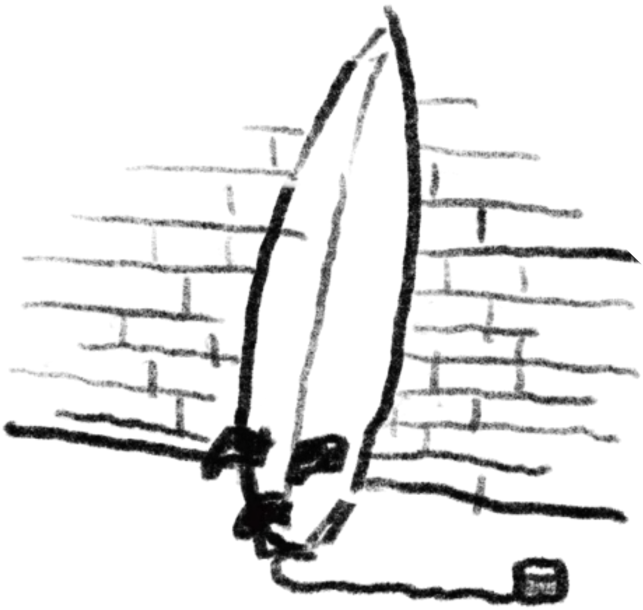
‘Nothing is more responsible than **living in the smallest space** you *possibly* can.’

– Frank Mascia.

5.0

Extra Helpful.

- **5.1** Activity 1.— the cost of 'imperfection'
- **5.2** Activity 2.— Values & briefing questionnaire
  - Inside activities
  - Outside activities
- **5.3** Activity 3.— Too much stuff?
- **5.4** Useful information.



'Make it simple,
but significant.'
– Don Draper, *Mad Men.*

5.1 Activity 1— the cost of **'imperfection'**.

We've taken the time to put together a few activities and questions for you. Some are personal and introspective, some are just downright handy and helpful questions to ask.

We think that by taking the time to go through these questions, you'll be well on your way to understanding what it is you truly want for your new home, and what it will take to get you there.

Starting with the 'cost of imperfection', we asked one of our staff to undertake the first activity.

Her results were surprising and what had seemed at first a flaw, enabled her to be aware of moments of fulfilment (time spent with her cats, waiting for the shower) or memories of joyful summers past.

Take your time to work through each activity and be honest, good luck!

ACTIVITY 1

The cost of 'Imperfection'.

Step 1.

List the imperfections in your home, [e.g. not enough bathrooms/bedrooms, size of kitchen, etc.]

Step 2.

Look at the physical, emotional and social effects caused by these 'imperfections'. Look at how it influences behaviour and interaction in your home and be honest with yourself.

If you are building, renovating or planning your home, really look at what may outwardly seem imperfect and take the time to question it. You may actually find that the behaviours or lifestyle it is supporting aligns with the values you want for your future home.

Along with most things in life, compromises are required when making a home, most often you can't have everything you want.
What are the things you are willing to compromise on? (i.e. size, financial investment, workshop, second bathroom.)

5.2 Activity 2.

Values & Briefing Questionnaire.

- What feeling or mental image comes to mind when you think of home?
- What values contributed to this feeling like home to you?
- Spend some time thinking about/ identifying you and your family's values.
- What simple things will support these values in your current home or your new one?
- Is there a difference between what 'home' feels like to you and what you are striving to achieve?
- What do you have now that contributes to your 'sense of home'?

VISION

The reason/vision for the project (i.e. A growing family, simpler lifestyle, downsizing, first home, financial reasons):

YOUR VALUES + LIFESTYLE

Values are fundamental beliefs that are of high importance or worth to us. Our values influence our behaviour and judgement. They are what guide and motivate our decisions, attitudes and actions on how we choose to live our lives.

Understanding your true, personal values allows you to be clear on how you want to live, and therefore, allows you to live an authentic and happy life for yourself, your family and with others.

By taking the time to define our values, we can begin to understand what our home needs to 'ideally' provide to enable the living and evolution of our authentic selves.

"You can never really get enough of what you don't really want"

- Rick Hansen

- What are your personal and/or family values (what is most important to you in life)?
- What does our ideal lifestyle look like based on your values?
- How much time do you need to live your ideal lifestyle? (Outside working hours)
- How much do you ideally work in your ideal lifestyle?
- What does a typical day in your ideal lifestyle look like?

What are the top 3 priorities you take from the above?

What needs to change or be considered in order to live your ideal lifestyle that is in line with your values?

Briefing Questionnaire

Notes.

Use this notes page to record your thoughts, responses, sketches, mind-maps while working through the briefing questionnaire

FUNCTIONS AND INVESTMENT

What does your home need to provide for you to support your ideal lifestyle above?: (i.e. grow veggies, big kitchen table to share family dinners, no garden - I don't have time! Space for our market garden, space to work quietly, space for kids bags and craft, space to do yoga in the mornings, surfboard storage and outdoor shower)
External:
Internal:

If you currently own a home - what does your home currently provide for you to support your ideal lifestyle?:
External:
Internal:

How many people live in your home now and in the future?

What areas of your current home are working for you? What areas are you currently drawn to?

What areas are not working?

How much home maintenance are you willing to do/does your time allow?:
Land/ garden:
House/ internal:

How long do you wish to stay in your home? Or is resale a future consideration?

How much money (finance) is comfortable for you to invest into your home?

Does this financial investment fit with your ideal lifestyle and how much you want to work now and in the future?

What are the top 3 priorities you take from the above?

SITE AND INFRASTRUCTURE

- How big is your property?
- What is the council zoning and does it have any overlays?
- Is your property bushfire prone?
- Are there any other authority restrictions that will impact your development?
- Does it support how you wish to use it and your lifestyle?
- What existing services do you have access to or are you planning to go off grid?
- Do you have existing access/ driveway? Does it need upgrading?
- Have you considered your building/ development area and its slope and orientation?
- Are there any other land use considerations?

Briefing Questionnaire

Notes.

Use this notes page to record your thoughts, responses, sketches, mind-maps while working through the briefing questionnaire

5.2 Activity 2—Values & **briefing questionnaire:**

Inside Activities.

GENERAL LIVING

- How many living and or 'activity' spaces do you need? This may be a dining/ living space, study space, a craft space, tv watching space etc. Do any of these spaces need to separate or all on their own?
- Does anyone in your family work from home or plan to in the future?
- Do you have a TV?
- Do you need a space to use a computer?
- Does anyone in your home have special needs?
- Do you entertain or have the aspiration to entertain a lot?
- What are the feelings or moods that you would like to create in your home?
- How 'open' or 'private' is your home? i.e. do you want a home that is available for people to drop in anytime or are you more nuclear family and feel more comfortable with a high level of privacy?
- What is your family's level of personal privacy within your home and between yourselves? i.e does anyone need more time on their own, do your children share a room?
- What are your aesthetic considerations?
- What is your commitment to sustainability?

KITCHEN and FOOD

- Consider how you cook and shop. What are your food ethics and patterns? ie grow our own food and store preserves supplemented with local produce or daily shoppers, or bulk shoppers? (food for thought: a smaller fridge often creates less waste as you can see everything in there and there is less opportunity to 'hoard' food)
- If a new kitchen is included in your design aspirations what are your basic thoughts on this? How much storage and bench space is required in your ideal kitchen?
- How many people usually cook together in your home?
- Do you prefer an eat-in kitchen or does your kitchen work better if it is more of a functional space? Keep in mind that kitchens generally become the heart of the home where everyone comes together.
- Do you compost and or have chickens or other animals to manage kitchen waste, please tell us about your aspirations here:
- Do you produce any bulk food items or need storage for any specific appliances?
- What are your material and/or aesthetic considerations for your kitchen space?

BATHROOM and LAUNDRY

- Would you like a bath? do you require a separate shower or walk in shower?
- Do you require a separate toilet or powder room? (toilet and basin room)
- What kind of personal products do you use in the bathroom? Plastic containers or in bar form and plastic free? How does your bathroom need to function?
- What laundry facilities do you require? A laundry room and/or mud room or will an integrated laundry or 'cupboard laundry' suffice?
- Where do you dry your clothes?
- What are your cleaning aspirations? what kind of products do you use? How much time do you want to spend cleaning?

SLEEPING and STORAGE

- How many sleeping spaces do you need? Will any occupants be sharing a sleeping space?
- How many clothes and shoes do you have and how do you wish to store them? Do you have standalone furniture or would you like built in furniture?
- Think about how often you have guests to stay, who they are and how long they stay for. What is your level of privacy or separation from your guests? Sometimes a multi-functional space can be sufficient for guests. Do you need designated space for guests?
- How much 'stuff' do you have? This may be camping gear, or stuff associated with other hobbies, children's stuff, bikes, gardening equipment. What are your thoughts on your 'stuff':

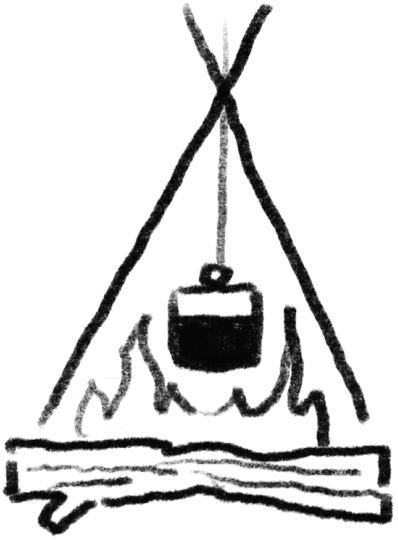
Briefing Questionnaire

Notes.

Use this notes page to record your thoughts, responses, sketches, mind-maps while working through the briefing questionnaire

5.2 Activity 2—Values & **briefing questionnaire:**

Outside Activities.



OUTSIDE

- How would you like to use your outdoor spaces?
- What kind of surfaces and planting would suit your aesthetic and maintenance aspirations?
- Do you have any pets? If so how many?
- Do you require a space for a washing line?
- Do you need to consider water use and or storage for garden watering?
- Are you planning to grow your own food, have a productive garden or larger food production?
- What is your commitment to maintenance and general upkeep of your buildings and property?
- How much time do you have to spend in your garden?
- Do you need a workshop, or any other out buildings?

BUDGET, TIME AND EXPECTATIONS

- What are the non- negotiable inclusions for your new home or alterations? list in priority order:
- What are wish list items or things you are willing to compromise on? This is often required to manage budget.
- It's important to include your budget. What are your budget expectations or thoughts?
- Are there any buildings, materials, vibes, aesthetics, concepts you like and why?
- Are there any materials or design concepts that you dislike?
- Any other thoughts or important things to note?
- What ideal qualities does your chosen designer have? Do you have any expectations of how the design process will flow?

QUESTIONS FOR THE BANK:

For anyone considering building, renovating or being an owner-builder, here are some suggestions of possible starting questions that can help guide financial discussions with banks:

- "What is your process for sourcing a construction loan?"
- "What level of information do you require to start talking about potential loan amounts for my project/property?"
- "What documentation and costing information do you need to approve the loan."
- "How long does it take for a loan to be approved once you have the required info."
- "I'm considering being an owner-builder, what would you require me to provide for you to consider my loan application?"
- "Do you have any specific loan structures for building energy or water efficient

Briefing Questionnaire

Notes.

Use this notes page to record your thoughts, responses, sketches, mind-maps while working through the briefing questionnaire

5.3 Activity 3.

Too much stuff?

Use this as motivation! We want this info to encourage us to kick into action and each try our best in our own imperfect way.

Have a packing party - pack all your possessions into boxes as if you are moving. Over the next few weeks, you will only seek out objects that you need and commonly use.

Then at a certain point take time to reflect on what remains untouched in boxes and ask yourself if these items are really necessary to keep in your life. If packing the whole house sounds overwhelming, start by doing a room at a time.

- Now gather your quality items together that you've decided to bravely part with and invite friends over to see if they would like to adopt any of these objects!

If planning to build or renovate, use your current 'stuff' patterns in the home as a guide to inform your new spaces.

- Do you keep wearing the same clothes from that chair in the corner, then do you really need a walk-in-wardrobe?
- Can't be bothered getting a step-ladder to reach the overhead cupboards? If they aren't providing you with functional space, do you really need them?
- Do you find you end up throwing food away that gets pushed to the back of the pantry and forgotten? If updating your kitchen, maybe have shallower pantry shelves so you don't lose stuff beyond your sight or reach.

When you're out shopping next and about to purchase something - take a minute to think about what you are buying and whether you need it or not.

- Do you really need it? Or do you just 'want' it? Can you see yourself using/ wearing this item in a years time?
- If you had never seen this item on the shelf would it have occurred to you to seek out and purchase an item like this?

Something else to consider is rather than always having to buy things ourselves, can we consider borrowing and sharing more?

- Do you need a new lawn mower (that will just sit in your garage for most of the time taking up space), or can you share/borrow one with your neighbour?
- Do you need a new dress or can you raid your friends wardrobe for one instead?

5.4 **Useful Resources.**

Please find some good resources and tools below and reach out if you would like to book a consultation to discuss and work through your particular situation in more detail - we are happy to assist.

Planning schemes and planning information:
https://www.iplan.tas.gov.au/Pages/XC.Home/Home.aspx

Being an owner builder in Tasmania:
https://everythingbuilding.com.au/building-surveyors/how-to-become-an-owner-builder/

Owner builder licensing:
https://www.cbos.tas.gov.au/topics/licensing-and-registration/licensed-occupations/owner-builder-permit

Owner builder training courses:
https://www.cbos.tas.gov.au/topics/licensing-and-registration/licensed-occupations/owner-builder-permit/training-courses

Tips for owner builders:
https://buildersacademy.com.au/tips-owner-builders/

Australian owner builder web page:
https://ownerbuild.com.au/

Pudding Lane Building Surveyors - Resources Page:
http://puddingln.com.au/resource/

Construction cost calculator (market construction cost):
https://www.aaarchitect.com.au/home-building-costing-calculator.html

Link to owner builder loans info and budgeting tool:
https://ownerbuilderclub.com.au/plan/owner-builder-loan/

Australian Standards:
https://www.standards.org.au/

National Construction Code:
https://ncc.abcb.gov.au/

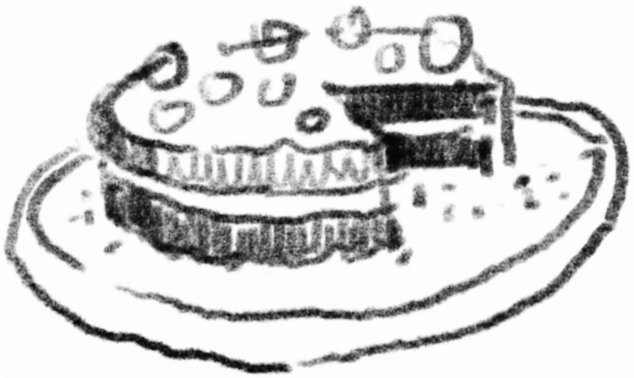
Planning and approvals
Pudding Lane Building Surveyors:

http://puddingln.com.au/resource/the-difference-between-planning-permits-and-building-permits/

https://everythingbuilding.com.au/general/the-journey-from-concept-to-council-approval/

Useful resources to learn more about embodied energy:
renew.org.au
joshshouse.com.au
www.lowcarbonlivingcrc.com.au
builtbetter.org/lowcarbonguides
www.level.org.nz/material-use/embodied-energy/

Useful resources to learn more about embodied energy for interior materials:
www.level.org.nz/material-use/embodied-energy/
www.yourhome.gov.au/materials/embodied-energy
https://greenmagazine.com.au/article/the-innovators/
http://www.ecospecifier.com.au/knowledge-green/setting-priorities/eco-priority-guide-kitchens/



This *Resource Collection* was made
by Designful
for anyone and everyone seeking a
mindful way of life.