# Whv You Don't Need to Waste Thousands Of \$\$\$ To Get Your Dream Home



# A PRE-DESIGN CLIENT GUIDE Rusty Hinge Home Design

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# Thank you for considering Rusty Hinge Home Design to design your new home or renovation.

The design stage of a home or renovating an existing one is the most crucial step in building. A comfortable and affordable home needs a well-considered holistic design approach. Incorporating key design principles, is essential in enhancing your lifestyle and well-being. I consider this to be my main priority.

To help you decide if I'm the right fit for you, please read the following information. I have broken this up into 4 main components:

Designing a 7-Star Home
Livable Housing
Budget- How to stay on track
Rusty Hinge Home Design- Process

– Rusty Hinge Home Design





## CHAPTER ONE

# Designing a 7-Star Home

Before I start, I need to briefly explain BASIX and NatHERS as they impact our whole design and your final home.

### BASIX

BASIX is the Building Sustainability Index. This is a NSWbased assessment tool that looks at insulation, water usage, energy aspects etc. This is assessed at the end of plan completion. Before plans can be lodged with council, we must achieve a 'pass' in all areas in order to lodge the BASIX Certificate. A BASIX Certificate will be provided by a thirdparty assessor.

On your behalf, I will usually arrange a BASIX Certificate for you to pay directly (approx \$1,000-\$1,200 which includes the NatHERS assessment if required).

#### 7-Star NatHERS Rating

You may or may not be aware that all new homes must now reach a minimum 7-Star NatHERS rating. At the time of writing, only the new area of a renovation must also comply.

NatHERS is the Nationwide House Energy Rating Scheme. It's software developed to assess a home's energy efficiency (it does crossover a little with BASIX). Before plans can be lodged with council, we must achieve a minimum of 7-Stars. A NatHERS assessment will be provided by a third-party assessor.

On your behalf, I will usually arrange an initial NatHERS assessment after the revision 1 plans to see how the design is tracking for compliance. The final NatHERS assessment is assessed upon plan completion. You would pay them directly (approx \$1,000-\$1,200-includes BASIX).







The information below, are the principles of good design. They do relate specifically to a new home, however, I apply many of the concepts to a renovation where possible. It's a very simplified version but should give you the basics on why we must rethink design to comply with the new 7-Star rating.

# The Principles of Good Design

| Principle             | What it is   |
|-----------------------|--|
| Designing for Climate | A large part of good design is designing a home to work with the local climate. This reduces the need for additional energy sources to heat and cool your home. It is important to keep in mind, that the home occupants also have a role to play by adopting good habits to allow the home to absorb heat during the colder seasons, and to achieve a cooler house in the hotter months. This can be as simple as opening curtains during the day in winter, to opening windows in key areas on summer evenings.              |
| Passive Design        | Passive Design incorporates many different aspects of the building and<br>the environment around it. Building orientation, thermal mass, glazing,<br>insulation, room location etc all work together to provide more<br>comfortable homes. Many aspects of passive design can usually be<br>incorporated at little or no extra cost yet give so much back to<br>occupants.   |
| Solar access          | This is the term used to describe the amount of sunshine reaching living spaces through glazing. Where we live, the aim is to restrict the sun from entering inside in summer and allow it to penetrate during winter. Solar access forms part of the passive design process. In winter, when the sun angles are lower, heat enters through the windows. This heat is then absorbed by the building structure and the furnishings, then reradiated as longwave radiation which does not pass back through the glass as easily. |
| Orientation           | A considered orientation of a home on a site allows the home to be<br>more comfortable and decreases the need for additional heating and<br>cooling requirements. The sun path during winter and summer is<br>considered when correctly orientating a building on a site. Although not<br>as hot, the North side (internal rooms) of a home receives more solar<br>radiation on a winter's day than on a summer's day. This is due to the<br>sun's path/angle (or arc) in winter being much lower in the sky.                  |
| Room Sizes            | Australian home sizes have increased steadily. Many rooms in our<br>homes are excessively large or rarely used. Sure, it's convenient to have<br>additional space but this does impact not only on our ongoing energy<br>use but also our initial build cost and ultimately, our mortgage. New<br>home design first requires us to rethink what we actually 'need' as<br>opposed to 'want'. Can an extra lounge room also be a temporary guest<br>bedroom with fold-down bed or study for instance                             |

| Principle                   | What it is  |
|-----------------------------|---|
| Floor Plan – North<br>wins! | The north-facing side of a home where we live on the south coast is<br>considered to be the most ideal aspect. This is where we need our<br>lounge, living and dining rooms to take advantage of the best solar<br>aspect.  |
|                             | In most cases, if not all, the land, orientation and solar aspect must<br>determine the basis of a floor plan layout. This is something that is<br>usually not fully understood by many. Yes, we can move things a little<br>here and there for views, for example, however, there will be trade-<br>offs elsewhere. If we ignore these aspects, it will be impossible to<br>achieve a 7-Star rating.   |
|                             | Almost everyone has lived in a home where the key aspects have been<br>ignored and have experienced the effects. Homes with sprawling floor<br>plans, and incorrect room and window placement, for example,<br>adding unnecessarily to the 'workload' of a building. For most, the<br>'solution' is to switch on the air con Consequently, it's little wonder<br>some struggle to embrace the need for better-designed homes.   |
| Solar Shading               | By shading the external walls and windows, we can reduce the impacts of summer temperatures, reduce energy use, and improve occupants' comfort. Shading types/methods, vary depending on the orientation of the building, the climate, and which side the house is facing.  |
| Colours                     | Roof colours in particular are extremely important. Where we live on<br>the south coast, a dark (or even medium) colour roof is not ideal.<br>These colours heat up our homes and require additional energy and<br>insulation etc to help combat the effects. The same can be said for<br>dark external walls. Lighter colour roofs perform much better and<br>should always be the first consideration. Lighter roofs will give us the<br>best chance of achieving a 7-Star home.  |
| External Hard<br>Surfaces   | Areas such as driveways and well-used paths need to be hard-wearing<br>to avoid erosion, but not necessarily concrete. Permeable surfaces<br>such as gravel, or paving allow water to pass through them which can<br>be absorbed into the existing subsurface soil. This method continually<br>'tops up' the groundwater supply, rather than possibly diverting it<br>directly from a hard surface such as concrete, to a stormwater drain.<br>To achieve compliance with the BASIX assessment, we need to<br>minimise hard surfaces. |

| Principle       | What it is   |
|-----------------|--|
| Zoning/Layout   | Determining the ideal zoning (or layout) of rooms takes place after I've visited the site, and a Site Analysis has been carried out. This will highlight existing features on the site such as views, prevailing winds, shading issues, points of access, sun paths, possible noise issues from surrounding homes etc. From this, along with the survey plan, and the true north point, the rooms and uses of a building can begin to be positioned according to good practices of passive solar design.   |
| Thermal mass    | Materials such as concrete, bricks, stone, tiles, and even water when<br>used correctly, have a high thermal mass. Products with a high thermal<br>mass absorb heat from the sun during the day (and internal heating at<br>night), then release the heat energy at night. This results in more<br>consistent temperatures throughout a 24hr cycle. Occupants' comfort<br>levels are increased, and energy costs are lowered.  |
| Floor Coverings | If our floor coverings are similar to the thermal mass materials above, this is ideal. Floor finishes such as carpet and engineered floorboards applied over a concrete slab, do reduce the efficacy of thermal mass considerably. Keep in mind, that carpet is still ok in bedrooms for example where we are not relying on thermal mass (i.e. on the south side of the house). New 7-Star homes are not as hot in summer, nor are they as cold in winter. We need to re-think floor coverings  |
| Insulation      | Insulation acts as a barrier to form a 'shell' at the perimeter of the<br>building (roof, walls, floors). This barrier reduces (Insulation must not<br>be viewed as a one-stop solution) the amount of heat either exiting or<br>entering the home's shell. This also allows occupants to make<br>adjustments, to control temperatures within the home by using<br>windows, curtains etc to change and enhance internal conditions.  |
| Glazing         | Windows, or more specifically glazing, has come a long way in a short<br>space of time. Energy efficiency in glazing is a high priority, and for a<br>very good reason. Up to 40% of heat energy can be lost, and up to 87%<br>of heat gained through windows! To achieve a 7-star rating, the<br>majority of windows now need to be double-glazed. The key concept of<br>glazing is to maximise glazing in the north with considered shading,<br>reduce glazing in the east and west with considered shading, and<br>minimise glazing in the south. |
| Lighting        | Energy-efficient lighting such as LED combined with the correct<br>mounting options (such as surface mount ceiling lights to allow<br>continuous insulation at ceilings) are a must. Recessed downlights are<br>to be avoided as the ceiling insulation cannot usually be continuous for<br>most downlights. Difficult to achieve a 7-Star rating with insulation<br>voids in the ceilingOccupant habits, and lighting design can greatly<br>impact a home's energy used for lighting.   |

| Principle   | What it is   |
|---|--|
| Heating & Cooling                                   | The average house-holds energy use for heating and cooling is 40% of<br>the total energy used in a home! Use air conditioning for example only<br>in living areas to reduce energy use. Ceiling fans in living and<br>bedrooms are also an efficient way to cool. New homes are warmer in<br>winter and cooler in summer no doubt compared to the home you're<br>in now. By avoiding air conditioning throughout a whole home, we can<br>achieve a 7-Star home.  |
| Appliances  | This is the next biggest area of energy use. Appliances account for<br>around one-third of the energy used, and almost half of household<br>greenhouse gas emissions! To reduce environmental impacts, we<br>move away from gas stoves for example, and instead use induction<br>cooktops. By using induction cooktops, and sourcing electricity from<br>Photovoltaic (P.V.) solar panels on the roof we can all do our bit.<br>Appliances are assessed as part of the 7-Star rating and gas stoves<br>perform poorly. |
| Hot water   | Another big user of energy in the home is hot water at around 21% of<br>the energy used in the average home. With the move away from gas<br>appliances and heating due to its negative impacts on the<br>environment, we look at cleaner alternatives. Electric Heat pumps and<br>electric boosted solar hot water are ideal choices for most homes and<br>even better when combined with Photovoltaic (P.V.) solar systems.   |
| Photovoltaic (P.V.)<br>solar electricity<br>systems | By converting solar energy into electricity, we can reduce energy<br>costs. Photovoltaic (P.V.) solar systems capture sunlight via panels<br>placed usually on north-facing roofs, then send this energy either back<br>into the electricity grid, directly back into the home, and more<br>recently, on-site battery storage.   |
| Water Use   | Above the ground, we rely on water sources such as rivers, lakes,<br>dams, tanks, and below-ground aquifers such as wells and bores. We<br>can all play a part in reducing water use at home. High star rating<br>tapware, shower heads, dishwashers, washing machines and toilets<br>reduce water usage. The way we use these items has a dramatic<br>impact too.<br>The roofs of our homes are perfect areas to catch rainwater. Diverting   |
|   | rainwater via roof gutters and downpipes to rainwater storage tanks<br>just makes so much sense. Although drinking water in suburban<br>homes should be via town mains supply, there is no reason we can't<br>use the rainwater we collect for other uses around the home. Typical<br>uses are for gardens, toilets and washing machines.  |

# Summary of My Key points for Designing a 7-Star Home

- BASIX & 7-Star NatHERS Rating- In order to achieve compliance, we must be open to change.
- Solution Designing for Climate- We need to work with the local climate.
- S Passive Design- So much comfort, for little effort.
- Solar access- Minimise sun inside in summer and allow it to penetrate during winter.
- Orientation- The sun's path/angle (or arc) is high in summer, and lower in winter.
- Floor Plan North wins!- Use the best solar aspect. Lounge, living and dining rooms at the north.
- Room Sizes- Do we really need it, or do we just want it? Can we change our perspective?
- Solar Shading- Shading needs to be considered carefully.
- Colours- Lighter roofs will give us the best chance of achieving a 7-Star home.
- Zoning/Layout- Position rooms where they need to be. Thermal mass- Used correctly can be 'free' heating and cooling.
- Floor Coverings- Understand thermal mass, and you will understand floor coverings...
- Insulation Insulation is only part of building a more comfortable home.
- Glazing- North-Maximise glazing, East & West-Reduce glazing, South-Minimise glazing.
- Heating & Cooling- Ceiling fans & air conditioning only in living areas. Ceiling fans bedrooms.
- Appliances- No gas cooktops, use induction.
- Hot water- Electric Heat pumps and electric boosted solar hot water are ideal choices (not gas).
- Photovoltaic (P.V.) solar electricity systems- The roof shape & location is essential for efficiency.
- S Lighting- Avoid downlights for continuous ceiling insulation.
- Water Use- Maximise water storage, select efficient products and minimise usage.
- S External Hard Surfaces- Minimise hard surfaces such as concrete paths.

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# CHAPTER TWO

# **Livable Housing**

Livable homes are designed to meet the changing needs of occupants.

A livable home includes key living features which are safer and easier to use for occupants such aspeople with disabilities, people with temporary injuries, ageing Australians, and young families for example.

- A livable home is designed to:
- o Be more responsive to the changing needs of occupants.
- o Be easy to enter.
- o Be easy to navigate in and around.
- o Be capable of adaptation in the future.

The Livable Housing Design Guidelines have been developed to benefit all occupants in some form during everyday use. The guidelines feature performance levels of silver (base level), gold and platinum.

The National Construction Code (NCC), has been updated to include some aspects of livable housing relating to the silver level that must be incorporated into every new home. There is quite a lot of compliance within the NCC for livable housing, although to simplify things, these include key elements such as:







- o Home access- We need to provide a compliant path and/or driveway from your front boundary to your entry floor level.
- o Home entrance- If we cannot provide entry via a driveway, level with your entry, we need to provide a step-free entrance at the front door.
- o Internal doors and hallways. Internal doors are to be a minimum of 820 clear in width. Hallways need to be a minimum of 1m clear in width. Where required, door thresholds are to be level (maximum 5mm difference) or ramped.
- o Toilets- At least one toilet must be at the ground or entry-level, require a minimum of 900 clear width, and 1200 clear circulation space in front of the toilet away from the door swing.
- o Showers- At least one shower must have a step-free entry
- o Reinforcement of bathroom and toilet walls- Baths, subject showers and toilets require walls to be reinforced and ready for grab rails in the future.

In addition to the above required livable housing requirements, I usually aim to incorporate:

- o Internal stairs- Stairways with a clear width of 1m to allow possible future installation of 'stair climbers' or simply make accessing stairs easier.
- o Kitchens & Laundry's- Adequate circulation space.

#### Cost?

Although you'll hear government representatives and the media say the implementation of livable housing is inexpensive, they do cost extra. When you consider we need to design with more restrictions, construction of access, entry's, wider doors and halls, more space needed for toilets and bathrooms, reinforcement of walls etc. is additional work.

#### Space required

We'll need to `find' additional space within a floor plan to accommodate the requirements. If we can pare back a little on the overall size/number of the rooms we really need, we'll be in a more capable position to achieve compliance and have a more livable home.



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# Creating Homes for Living, Loving, and Thriving.

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## CHAPTER THREE

# Budget- How to Stay on Track

The key is to find a balance between building and budget....

Before we start your plans, I will ask for an approximate building budget. This will form an approximate guide to work to. I do suggest you also factor in your own contingency amount of something you may be comfortable with (say 10%).

So how do we come up with a budget? Well, this would be quite simple if we could have a builder quote your finished plans, and completely build and landscape your home before we start....That is really the only way we will truly know the final cost to be able to establish a true budget.

Unfortunately, a builder needs the plan we produce together before he can even give you a quote to build your home. Within this quote, a builder will also need you to clarify all of your selections such as tiles, kitchens etc. Within this, there are many variables that ultimately come down to your personal choice which varies the final cost.

For this reason, it's impossible for either of us to come up with a true budget before we start. Building costs are also increasing and sometimes at unexpected rates.







# Establish a Budget

- Option 1. Contact a builder you would consider working with and discuss the sort of home you're thinking of, i.e. a 7-star home, on a level or sloping block, single or two storeys etc. They may point out a previous home where you could have a 'drive-by' to gauge an idea. Then ask for an approximate price range you would be looking at and what it would/would not include. This will also be a good opportunity to meet your potential builder.
- $\bigcirc$

Option 2. Ask a builder to give you an approximate guide of a square metre cost (based on option 1 details). This can be difficult however as each home is different, has different build characteristics, and different internal and external areas. Still, if you can establish an approximate square metre rate for all internal and external areas at one rate, it can still be a very useful place to base a design.

Option 3. Let me know your budget, we work on a concept design, and then you run this by your builder. Please note that our design process will be delayed until I receive feedback from you to continue. As builders have a busy schedule, it's difficult to know when we will recommence and how this then fits within my schedule. This is all ok, as long as you understand I may not have space for you for some weeks.

#### Need' or 'Want'?

By first understanding the principles of designing a 7-Star home, we are better placed to remain within budget. Room sizes and the number of rooms increase the floor area. By increasing floor area, we're also increasing excavation, floor material, walls, cladding, roof, services, insulation, finishes etc. Add labour to this and well, the cost continues.

One of the easiest ways to help a budget, is to keep the overall size down from the start. Limiting the number of rooms to what we need, rather than want is a step in the right direction. Before we add a room that will hardly be used, can we instead look at the guest bedroom as a study? Do we really need the second lounge or will the main lounge work? Do we simply have 'stuff' we don't use?

As we move closer to the design stage, I'll ask you to complete a design brief questionnaire. This will form the basis of how I go about establishing a concept plan. It's important to think about what it is you really need. By really thinking about what we do need, we can help to keep the budget on track.







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# Maximize Your Design Potential within Budget.

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## CHAPTER FOUR

# Rusty Hinge Home Design- Process

## YPRE-DESIGN

Every project is unique, and some require a slightly different approach. I'll usually carry out the following:

- o Arrange an on-site meeting with you to discuss your ideas.
- o Send you information regarding the next steps and include my fees based on our discussions.
- o Provide you with this document and a Design Brief Questionnaire.
- Arrange for a site survey & an initial bushfire assessment to establish the BAL (Bushfire attack level) if required. You will pay them directly.
- o Provide you with information to apply for a planning certificate which will be required for D.A. submission.
- o Review your design brief and answer any questions or clarify any possible concerns you/I may have.
- o Attend the site once I have the survey to carry out a site analysis (or site measure for a renovation).

## CONCEPT DESIGN

Many will provide you with a basic concept however this approach doesn't incorporate key linking elements to be of real value (in my opinion). Sure it gives you a basic idea, but without providing real dimensions, storage areas, furniture layout etc, often what seemed to work, may not. This can lead to significant changes which no longer reflect the original concept.

Instead, my approach is first to gain a thorough understanding of your brief before I begin work on your concept design. Then taking all of the things you now know about building a comfortable 7-Star home, and knowing what you need, I prepare a true concept plan. Usually, this will consist of a site plan, floor plan, elevations, and 3D perspective views. All of my 3D perspectives and plans are only provided in black and white.







# **O**D.A SUBMISSION

D.A. submission is now carried out online via the NSW Planning Portal. I will usually:

- o Apply for the D.A. via the NSW Planning Portal.
- o Upload D.A. plans and documents as required.

Usually, within a few days after starting the D.A. process, council will issue us with an invoice for the D.A. fees. You will pay this fee. Fees vary with each project, approximately \$2,500 - \$5,500.

## MY FEES

As each project is unique, I will inform you of my fees along with the next steps at the Pre-Design stage. For what I provide, along with my extensive trade knowledge, I'm very reasonable.

# 🕑 FAQ

I don't:

- o Build, I only design.
- o Detail internal details such as kitchens. Your builder will have a cabinet maker provide this to you.
- o Provide electrical layouts etc. as your builder will have an electrician provide this to you.
- o Design units, townhouses or commercial buildings. My focus is single residential homes.
- o Pretend to know everything. I do instead, seek answers.
- o Know if what we design will match your budget, but I do try my best.
- o Take on more work than I can manage, so I can invest quality time into each project.

### MY SKILL SET IS UNIQUE, I:

- o Communicate promptly.
- o Have over 25 years of building trade (carpenter & builder) knowledge.
- o Don't settle for 'it works' I 'make it work better'.
- o Design thoughtfully yet still economically using my trade skills.
- o Design to reduce maintenance, using my trade knowledge.
- o Ask many questions and offer suggestions.
- o Consider how your home will be lived in now, and in the future.







This gives you and your builder a true representation of the building and how it needs to be constructed. Builders find (I agree too) that saturated colour hides key detail and often gives clients a false perspective on how the end home will look.

In providing your concept plans, I also note plenty of questions and make plenty of suggestions. Again, this is another point of difference as I'd rather take the time to consider what is best for you and your home. I'll review your feedback and answer any questions and clarify any possible issues you/I may see.

Your input, into your home, at this early stage, is invaluable.

## DESIGN REVISIONS

The revision plan is built upon the concept plan incorporating your feedback. At this stage, on your behalf, I would usually arrange an initial NatHERS assessment after the revision 1 plans to see how the design is tracking for compliance. If changes are needed for compliance, I'll work with the assessor and inform you of these within the next revision plans. I find 1 or 2 revisions are usually all that is needed.

### 🕥 D.A. DRAWINGS

This is where I'm different to most, and may be the reason why my fee appears initially a little higher. To submit a D.A. (Development Application) plans are not required to provide information for the builder to build your home....They just need to meet minimum requirements to satisfy council planning policies. As a result, the plans required for a D.A. are quite basic and then require a set of working drawings for a builder and for the C.C. (Construction Certificate) stage. The Construction Certificate is usually arranged by your builder and is the second part of certification before you're able to start building.

The problem with just supplying a D.A. plan set is when we fine-tune the working drawing set, minor and sometimes major problems are found requiring amendments of plans with council. The plans I provide are usually ready for the builder to use as a working set of drawings. My view is, that it's better to work out any issues from the start, which saves costs in the long run, and avoids disappointment.

### **O**D.A. DOCUMENTS

I'll prepare the necessary documents for D.A. submission. Depending on the project, this can vary. I'll usually carry out the following:

- o Arrange for a BASIX & NatHERS Certification if required.
- o Provide you with an owner's consent form to sign.
- o Complete a waste management form.
- o Prepare a brief overview of the proposal.
- o Prepare a Statement of Environmental Effects.







# Quite a lot to take in....

I do hope this has helped explain how we now need to approach designing better homes, how you may be able to manage your budget, and the usual process of working with me. If you think I may be 'the right fit for you', please let me know, and we can make a start.

Adam Smith

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