

Home > How to Develop a New Home > / Developing a New Home

Introduction



A sample of a detailed design drawing

During this design-intensive stage, the preliminary design will be developed into documentation that enables the consent and construction of the house. As a result, the drawings will increase in complexity and there will be more of them. It's important to ensure everyone understands what these documents are trying to communicate and the implications they have in future stages.

How detailed design contributes to your project's objectives

In the detailed design all materials, systems, finishes, and construction methods are specified. With this additional level of detail you can assess these specifications and the overall design against the Design Brief and Vision Statement, and fine tune the design even more to meet your objectives.

Keeping track of progress in this way also involves checking that the agreed services are being delivered by the design team. Good communication channels, meeting minutes, and a contract that is easily understandable are helpful when taking on this task.

Key Activities



A client examines material samples

As in the concept and preliminary design stage, the level of your involvement is impacted by the procurement option you have selected. The table below highlights the main differences.

Group Housing

Your involvement is minimal as you are buying a package that includes a standard design.

Design & Build

Your involvement depends on the degree of customisation you require, and what is agreed with the builder.

Custom Design

As the name suggests, design is entirely tailored to fulfil your needs, therefore you will be heavily involved in detailed design. You need to work closely with the designers to achieve optimum results.

Communicate with the design team

As the project develops, the design team's job becomes more technical and their documents and drawings harder to understand for someone without the background experience. You may feel daunted by this but it is crucial to keep up

with developments and maintain communication with the designer. You have the right to express your doubts, but do this in clear and timely manner so that you are giving designers constructive feedback, not criticism.

Discuss how sustainability objectives and targets are being met

In addition to the house's aesthetics, the quality of spaces, the materials being used, the house's structure and services, it is essential to discuss sustainability objectives and targets and how the design is meeting them. Considerations about **energy, water, comfort and health, lifecycle costs** that have been included in the Design Brief can be easily forgotten along the process. Your design team should incorporate design strategies, systems and products to help the project meet those objectives and targets.

Expert advice in areas such as systems design and thermal modelling is key to ensuring they are achieved. While you may suggest the engagement of such sub-consultants and possible candidates, it is the designer's responsibility to incorporate their input into the design. You should enquire about the outcomes of their work and how this is being incorporated during your progress meetings with designers.

Make decisions about specifications

The specification section of the detailed design will detail the type and quality of every material being used in the house, from the more visible finishes to things that people will never see, such as steel fixing for foundations. There are two key aspects for you to consider with regards to specifications:

1. Everyone has a particular idea of the way they want their house to look. This includes the quality of spaces but also the materials that are used. Seek alternative materials and finishes that are within your budget, and spend time understanding their attributes beyond appearance, particularly in relation to health and durability.
2. Products and systems will have an impact on your sustainability objectives and targets. When making decisions, consider lifecycle costs and how they may impact different aspects of the project. For example, some low-toxicity finishes such as paint or untreated timbers may result in higher maintenance costs due to more frequent reapplication or replacement.
3. Decisions about some finishes, such as fixtures and fittings, can be left out of the specification and defined later in the process, although considerations about their performance should be defined if necessary. In order to do that an amount of money known as a prime cost (PC) or provisional sum is set aside by the design team for you to spend on those items later. Discuss any provisional sums with the designer and seek quotes for things like window coverings and floor coverings to ensure the provisional sums are adequate.

How much input you have into the specification will depend on the procurement process you have decided on.

- **Custom Design:** The specification will be discussed with your lead designer and builder (if they have been engaged at this point) but you make the final decision and can have what you want.
- **Design and Build:** You will discuss the specification with the builder or developer, and how much input you have will depend on the agreement or contract you have. While there will be some flexibility, the builder may have agreements in place with suppliers which will limit your choices.
- **Group Housing:** The specification will be included as part of the overall package, and there will be very limited ability to change anything. Any change will carry an additional cost.

Review the tender documents

In a Custom Design project your designer will prepare tender documents for builders to respond to with their price and proposed building process. Before the documents are finalised you should review them with the designers to ensure they align with the project's objectives and to understand what builders are being asked to provide in their responses.

Once the tender documents have gone out, any changes to the design will have an impact on cost and time. Details such as window placement, lighting and plumbing design are typically finalised within the tender documents, so it is important to note that this point may be the last chance to make any changes to the design.

Tender documents are only required when a selection of builders for the building stage needs to be evaluated. With Group Housing and Design & Build projects the building team is most likely already engaged so tender documents are

not necessary. Where a building team does need to be engaged at this stage in these projects, you might not have the option to view the tender documents before they go out.

What to expect from your designer

Refine the design

In this stage, designers work towards producing a set of documents that can be used for building consents, resource consents and contracting processes. They will progressively develop detailed drawings, schedules and specifications that serve as the basis for the construction process. Areas that are being refined include:

- building construction methods, including structural details, insulation and waterproofing details
- building systems such as heating, plumbing and electrical
- products and systems to meet sustainability targets and optimise design
- internal details such as stairs, bathrooms and cabinetry
- material finishes.

The project develops alongside a cost plan and program of work. As the drawings become more detailed, so will these two documents.

It is the designer's responsibility to produce all the information necessary to communicate the project to others in an effective way. This will be essential for a smooth consenting process and will avoid misunderstandings with the building team during construction.

Assess the design against the Design Brief and Vision Statement

Forgetting about the overall vision that was captured in your Vision Statement and Design Brief becomes more likely as the project advances and designers get caught up in resolving the details of the design. Keeping these documents at hand and revising them periodically to ensure your objectives are being met will result in a satisfactory outcome for both you and the design team. It is also important to check that time and cost targets are being met, to understand and document any areas where they are not, and to document any changes to the brief and the impact of this on the timeframe or budget.

Prepare drawings for tender

In a Custom Design project, tenderers will base their proposals on the set of documents containing drawings, specifications and the program of work. The level of detail contained in them should be sufficient to understand the project without allowing for personal interpretations or ambiguity. A high quality design process should result in an efficient and smooth-running tendering process.

Deliverables

Developed design documentation

Developed design documentation elaborates on the preliminary design by adding additional levels of detail to what had been defined before. It will contain most of the information that will allow construction of the house, such as dimensions and technical information, but there is still some room for final changes and improvements. The document should include:

- plans, elevations and sections of the building
- specifications and schedules of the main components, defining performance and/or material standards
- a cost plan showing the capital and life cycle costs for the main components
- a statement of how the Design Brief and performance criteria are being met.

Detailed design documentation

Detailed design documentation is the most important set of documents designers will prepare for clients, as these are the documents that are submitted to the council for a building consent (<http://www.aucklandcouncil.govt.nz/en/ratesbuildingproperty/consents/buildingconsents/Pages/home.aspx>) or

resource consent application. Builders will also base their tender proposals on this documentation, and use it for construction. It contains:

- plans, elevations, sections and details of all the construction components
- coordinated input from sub-consultants and services designs, which is incorporated into architectural drawings
- specifications and schedules of all the components, defining the performance and/or material standards
- a detailed cost plan showing the capital and life cycle costs for all components.

Tender documents

With the exception of the cost plan, all the documents produced by designers for the detailed design are submitted to contractors for the tendering process. A Request for Proposal should also be included. This is a letter that outlines the conditions of the tender, the type of construction contract, and instructions for the contractors to respond to the invitation.

Who should you be talking to?

Auckland Council

Building consent

New housing developments require a building consent (<http://www.aucklandcouncil.govt.nz/EN/ratesbuildingproperty/consents/buildingconsents/Pages/home.aspx>) that demonstrates compliance with the Building Code. The Auckland Council website offers a large number of resources to help with the building consent process and help you compile the necessary documentation. For council officials to have a complete understanding of the project, a comprehensive set of documents needs to be submitted, including:

- certificate of title
- a set of drawings containing architectural, structural and plumbing details (solar hot water systems should be included)
- specifications
- additional reports including geotechnical, energy efficiency, and fire design
- planning information
- information about pools, solid fuel heater appliances and water heaters.

An application for building consent is typically submitted to the council when finalising the detailed design documentation, but you should talk to your design team about their preferred timings based on their professional experience.

Eco-Design Advisors

The Eco-Design Advisor service is an initiative of BRANZ. Advisors work within city councils across the country and provide free, independent advice on how to improve the use of **natural** resources in homes. Although their focus is mainly on existing houses, they can also help you identify strategies, products and systems to improve efficiency.

Water Advice Line

The Water Advice Line is a free audit service provided by Watercare and the EcoMatters Environment Trust. It offers water advice to households so they can reduce their water consumption. Although their advice is mostly focused on existing houses, they can also advise on new projects.

What to look out for



Maintaining communication with the design team is essential to avoid unexpected results that fail to meet expectations

Not communicating with the design team

Even though this is a designer-intensive stage and you adopt a more passive role, maintaining communication is essential to avoid unexpected results that fail to meet the expectations of the people who will live in the house. Good communication will help ensure the project's objectives and targets are achieved. Failures in communication can lead to you requesting costly and time consuming changes in the future because of something you did not understand or the designers forgot to mention.

Involving product suppliers in the design

As details are being developed, you may choose to add special elements to the design to help achieve your objectives and performance standards. While enquiring with suppliers about solutions is important, there is a risk in allowing them to take a role in the design as a replacement for a qualified professional. Their proposals can be based on price instead of quality and defects in their designs may prevent the project from achieving the desired performance targets.

It is important to note that registered architects and professional members of ADNZ operate under a strict code of ethics that means they are not allowed to accept inducements (commission or kickbacks) from suppliers. This means you can trust that their recommendations are for the benefit of the design and not just to get a sale.

An example could be where a heating system is installed that has one temperature setting across the whole house. While this may be a cheaper solution than one that has the ability to heat rooms to different temperatures, the design

may be aiming for different temperature ranges in different parts of the house, e.g. living versus sleeping areas, therefore such a system would not align with the overall objectives for the home.

Not considering resource and building consents

With regard to council interaction, there are a few risks you should be aware of:

- Undertaking detailed design without having previously gained the necessary resource consent (<http://www.aucklandcouncil.govt.nz/EN/RATESBUILDINGPROPERTY/CONSENTS/RESOURCECONSENTS/Pages/home.aspx>) . If resource consent is required it is recommended that an application be made after preliminary design is completed. Failing to do so early enough may generate large and time consuming changes in later stages if the council does not approve the proposed development
- If the council rejects an application for building consent (<http://www.aucklandcouncil.govt.nz/en/ratesbuildingproperty/consents/buildingconsents/Pages/home.aspx>) , major modifications may have to be made to the project, resulting in delays. Choosing designers with sufficient experience in the consenting process and knowledge of the Building Code should prevent this from happening. It is also important to remember that a designer used for a new home must be registered as a Licensed Building Practitioner (<http://www.business.govt.nz/lbp>)
- You shouldn't forget that consents take time to process and must be paid for. After the council pre-application meeting, and with the designer's advice, it is possible to estimate the timings and costs of council consents and work them into the overall schedule and budget.

It is important to have all the requirements in place, including building consent approval, before continuing to the next stage of the process. Changes in the design after tender documents have been handed out or after building work has started will be considered variations to the contract, and incur significant delays and extra expenses.