

HOME OF 2030 HOME DESIGN TOOLKIT



GENERAL ADVICE

HOW TO GO ABOUT DESIGNING A HOME

Designing a home is a bit like assembling a series of great ideas to create an amazing whole. What makes a great idea? Think about key factors such as who lives in the home and how will your design benefit them by meeting their needs. You should also consider wider factors such as the environment. What could your home do to positively contribute to its surroundings?

Dieter Rams wrote a concise list of 10 Principles of "Good Design" which is a useful reference to refer to. If you've given thought to why you've designed a certain element a certain way and the benefits are clear then it's good to go!

You could break down the process of planning a home into a series of steps, we've provided a beginners list towards the end of this document. Be creative and have fun, there's no need to worry about right or wrong answers!

HOW TO ORGANISE AND COMMUNICATE YOUR IDEAS EFFECTIVELY

You might have a fair few ideas for your home, so many that it could become overwhelming to explain them all to other people. This is where you need to begin to organise your ideas.

To do this, it's important to identify your main ideas, choose three or so, these will form your key concept. For instance, your key concept could be 1. A home that has ease of mobility for the elderly 2. Has low energy use and 3. Is made of natural ecological materials. These should be the fundamental aims that make your idea stand out as unique. You can identify your key concept by thinking about your instinctive response to the brief and your interest in homes. It might help to picture your key concept as the big branches of a tree. Your home is the trunk and all your various ideas are supported by the big branches like smaller branches, twigs and leaves. For instance, the way you design an element even as small as a tap could link back and reinforce your key concept.

By organising your ideas they become easier to communicate. When it comes to pitching your idea, you can do so quickly and succinctly. Your three key concepts will broadly encompass everything that makes your design unique while also explaining all the individual well-designed elements of your home.

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FINDING INSPIRATION

Learn from what's around you! You could start by looking at good examples of home design online or in books (websites such as [Dezeen](#) or [Archdaily](#) have large archives of homes). This is a quick, helpful way to shape an opinion on what makes a great home design. You may also find inspiration in different fields of design such as transport, product, tech or even the arts, such as music, sculpture, painting. Not forgetting the many astounding solutions in nature. It's a great way to trigger inspiration. Don't worry too much about borrowing ideas just make sure you understand and improve them, make them your own!

STAND BACK AND REASSESS

As your design progresses, it may be helpful to stand back and reassess. Check how your design is shaping up against your key concepts and the competition brief. Use them as a touchstone that you revisit periodically, it's easy to sometimes get lost along the way.

Designing a home is an iterative process, as you draw your ideas they will evolve, so don't be afraid to revisit and improve your design as you progress. You can work quickly to start with, make use of sketches or rough models and gradually hone your ideas and representations. Sometimes you'll get stuck, this is a clear sign to step back!

Also bear in mind that nothing is ever perfect, think of it as the best you can do in the time available while catching as many of your excellent ideas as possible.

PRESENTING YOUR WORK

This is a critical step. Your presentation needs to communicate your concept clearly as well as looking exciting and inspiring. It's not an easy task which is why it needs to be planned ahead! It's helpful to remember that you're not only designing a home but you also need to design how it's presented. You can have an amazing idea but it'll be wasted if it doesn't sell itself. Think, what will the appearance, content and style of your presentation communicate?

While you're resolving your design, try to visualise how the presentation could add emphasis to your concept. What material will best tell people the story of your idea? For example, if part of your concept is about green spaces and well-being then use green tones and images of forests and trees to reinforce that.

BASIC STEPS TO DESIGNING A HOME

1. POSITION - Think about how your home will be positioned on your site. How does it sit next to natural features such as trees, water and landscape? What's the topology of the land you've chosen. Where are the best views, where is north and where is the sun path. Are there any neighbouring buildings, roads or land uses you need to think about while designing. This is called 'Site Analysis'. It is a stage that you can keep referring back to that will help your decision making. It's particularly helpful while orientating and setting out the layout of your home.

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BASIC STEPS TO DESIGNING A HOME

2. SHAPE - What shape will the footprint of your building take and how will it work alongside the POSITION of your home. The shape of your building should respond to opportunities and constraints you've identified in your site analysis in step 1. You may need to revisit this step many times as your thinking progresses! Remember that not all lines and angles need to be conventional and square, don't be too rigid and think creatively. Surprise us with a curve or two!

3. ROOMS - The planning of your rooms will define how the home functions, it's a super important stage, it needs to be efficient, practical but exciting. Don't be afraid to revisit the POSITION and SHAPE of your home during this stage. You can follow the guidance in the [National Described Space Standards](#) or sections of the [London Housing Design Guide](#) document for tips on room sizes.

3.1 TYPE - Firstly, consider the type of rooms you will need in your home and the activities they will accommodate. What qualities of home-life will they promote? Sociability, individuality, privacy are some examples. Typically a home will need a bedroom, kitchen, bathroom, living space, dining space and outdoor space as minimum, but think about how you want people to live in your home.

3.2 SIZE & SHAPE - Secondly, What type of spaces will these activities need? What size are they, are they private or open plan, do they need views, tall or low ceilings, levels of daylight, how will they be furnished. Imagine where rooms would best be located within the footprint you've identified and the position of the house.

3.3 RELATIONSHIP - Thirdly, how should the rooms and their uses connect. How do they fit in with the garden/outdoor spaces? Which floor will they be located on? Consider where doors, entrances and circulation need to be positioned. What will make the layout of your home unique and a dream to live in?

4. WINDOWS - Judge where your windows will need to be positioned relative to your rooms. Will they offer: views, daylight, privacy? How do they relate to the sun's path and will they need shading from the summer sun? Think about size and shape, how will they relate to the inhabitants and activities of the house? Don't forget that you can also use roof-lights as another means of bringing light into your plan.

5. DOORS - Much like windows, not all doors need to be the same size and shape. What opportunities could the size, position and materials of the doors you design offer?

6. STAIRS - Stairs connect the floors of a home vertically. They serve a practical purpose in that they need to be safe to navigate. They also offer an opportunity to create tall volumes of space that connect the home. This could potentially bring daylight deep into the plan through windows or roof lights, also to create views from floor to floor. Section 1 of [Approved Document K](#) has policies for safe stair design.

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6. CIRCULATION - The space between rooms that allow you to move around the areas of the house. Too often circulation spaces are sidelined as dreary corridors. They should be treated as rooms in their own right! What possibilities could they offer for storage, daylight, views and embody the home with an intuitive layout?

7. STORAGE - Storage space is also often overlooked. Residents need space to keep their belongings and it's important to design space for this that works with your overall layout.

8. ROOF - Your roof will principally shelter the home from the weather. But it could also offer other opportunities such as interesting volumes beneath, overhangs that provide outdoor shelter, terraces and planting. Think about whether you want to make a feature of your roof or whether it will be more discrete and hidden. What will the material be? Where will it take the rainwater and how could it contribute to an exciting design.

9. EXTERNAL WALLS - The external walls will shape the main appearance of your home so they need to be given some careful attention. Windows and doors not only need to work for the individual rooms within the home but also form an attractive and balanced elevation on the outside. It's a challenge for sure! The materials you use to clad the building will also play a big part in the home's overall appearance. The hurdle is to figure out how materials, windows, doors and balconies can combine to make an elevation that is harmonious and beautiful.

10. SAFETY CONSIDERATIONS - Homes need to be designed to be safe and comfortable for their occupants. Building regulations are the principal legal policies to ensure homes are designed and built to safe standards. If you have questions about safety then you can refer to the regulations [online](#). Better still, seek a little help from a teacher, tutor, local architect or building professional if you can. The regulations can be a little daunting at first.

10. OUTDOOR SPACES - Everybody needs space to stretch their legs! Be inventive and think about how outdoor spaces could work with the home to make it even better. How could these spaces fit in with the life you're picturing for your residents? Will there be space for trees, planting, growing food, entertaining, working, playing, relaxing, exercising? There are options aplenty!

11. ECOLOGY - We have a long way to go to reverse the damage caused by the last 200 years of unsustainable development. We need home designs which are energy efficient, ecological and reduce construction waste. Aim to make use of renewable resources, minimise resource use, promote biodiversity and green space. How can your home positively contribute to nature?

12. REFUSE - Think about where outdoor storage could be located. Where to store refuse and recycling. Perhaps you want to consider composting. Nobody likes staring at bins!

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HOW TO DRAW A HOME

Here are a few pointers on how to go about drawing and representing your home design. You should ideally think about showing the following in some way:

- a) **communicate your concept**
(Sketches / Diagrams / Models)
- b) **how your home works as a series of spaces**
(Plans / Sections / Sketches / Diagrams / Models)
- c) **what it would be like to live in your home**
(Rendered Views / Sketches / Precedents)
- d) **what your home would look like from the outside**
(Rendered Views / Elevations / Sketches / Precedents / Models)

SCALE DRAWINGS

When designing a home you should draw 'to scale'. What this means is that you should draw your home accurately and at a practical size. Homes are too large to draw at a life size scale (1:1) the amount of paper would be very impractical!

We, therefore, need to shrink the way we draw. As a convention, homes are often drawn at a scale of 1:50 (That's 2% the size of real life) or 1:100 (That's 1% the size of real life). 1:100 is easiest as 1 centimetre will equal to 1 meter. In the construction industry a fixed range of scales are used depending on the nature of the drawing:

1:1	Full (or real) size for details
1:2	Details
1:5	Details
1:10	Interior spaces/furniture
1:20	Interior spaces/furniture
1:50	Interior spaces/detailed floor plans/different floor levels
1:100	Building plans/layouts
1:200	Building plans/layouts
1:500	Building layouts/site plans
1:1000	Urban scale for site or location plans
1:1250	Site plans

When choosing a scale, think about how much of the home and surroundings you would like to show and the size you have available to you on your page. When drawing or sketching you can use scale rulers that translate Meters to Centimetres. Or if you're using a computer, CAD drawing software will assist you.

There are many resources online which explain scale in more detail, such as this [article](#). You can also internet search for 'architectural scale' where you'll find many articles and videos that explain the concept. The short film '[Power of Ten](#)' made by Charles and Ray Eames covers the concept of scale. It's a classic which you should watch!

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FLOOR PLANS

Floor plans are the most useful drawing. They will help you design your building and to also explain your building to others. This makes them an essential part of your thinking. A floor plan is a drawing drawn to scale, showing a view from above your home and should reveal to the viewer the relationships between the rooms, spaces, and circulation that you've laid out. They are simple flat drawings much like maps and should be easy to read.

Floor plans are also used to locate pretty much any elements within your home. This can help explain your concept. You can locate doors, windows, features such as furniture, basins washing machines even where the family dog sleeps. If you've designed it, show us where you intend for it to be on your plan. In many ways, the plan is proof that your idea works. Proof that you've thought about sizes and the space needed for people to live and find the spaces useful.

It's helpful to practice reading plans. Pick an interesting home online or in a book and study the plan against the images of the building. Notice the translation from drawing to building and vice versa. It will soon become second nature.

There are many conventions for drawing plans. These range from graphical techniques such as line weights, to annotations that make them easier to read. You could research further online, there are articles and videos that explain plan drawings in more detail.

CROSS SECTIONS

Once you've drawn your floor plan you can start to think about showing the vertical profile of the building. The heights of the rooms, the shapes of roofs and how your stairs will work. The best drawing to do this is a cross section. In the same way, as a floor plan is a horizontal section through your home, viewed from above, a cross section is a vertical plane cut through your building looking from the side revealing the inside of the building.

ELEVATIONS

Elevations are intended to show a view of your building seen from one side, a flat representation of one façade. This is the most common view used to describe the external appearance of a building, the alignment of windows, doors and where materials are located. Each elevation is labelled with the compass direction it faces. Elevation can be a helpful way to organise a façade while you design. However, a rendered view might be a more exciting way of showcasing the external appearance of your design.

MODELS

Building a model, either digital (on a computer) or physical (made in card, paper etc), can be a very useful tool while designing. It allows you to consider your design as a 3d object. This will help investigate some of the space you've designed. Models also work well to explain your ideas in a vivid and engaging way to others.

Models can be used to generate a range of presentation material. Rendered images, animated walkthroughs, 3d printed models. If you're making a physical

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model think about what type of material you're modelling with and make sure it's going to look good and be easy to work with. Don't forget to photograph your physical models!

RENDERED VIEWS

The most impressive way to immerse people in the potential of your design is to put together some rendered views. These offer a perspective view of your design that you can show materials, furniture, plants, light, whatever you feel best animates your idea. You can make a view from a digital or physical model or you could even use a freehand drawing, collage or painting. Use a view as a tool to showcase some of the amazing features of your home and make them exciting!

SKETCHES AND DIAGRAMS

You can use sketches and diagrams to convey some of your key ideas. Not all your presentation material needs to be painstakingly laboured! Sometimes the quick energy of sketch is the best way to get across the dynamism of an idea. Some of the world's most acclaimed buildings started and out as rough sketches or diagrams, so we want to see yours!

PRECEDENT IMAGES OR MOOD BOARDS

Precedent images are a quick and easy way to describe your ideas using images that you've gathered that embody some of your ambitions. These could be images of buildings you've been inspired by or materials that you intend to use, anything you like. They can bring a presentation to life and every architect will use one at some stage of a building project! [Pinterest](#) can be a helpful website to find inspiration as well as organising images you've found.

SITE PLANS

A site plan is much the same as plan, although a site plan will bring in the surrounding landscape. That means the plan of your home would take up proportionally less space on a page than a typical plan and show more context. Usually, a site plan would be a scale of 1:500 or 1:1000. Not an essential drawing but useful if your scheme has relevance to its surroundings.

DETAIL

For a competition, your drawings should be trying to capture the excitement of your ideas. Try and focus on the bigger picture, nobody is expecting fully engineered and resolved drawings. We'd much rather be wowed by your creativity!

DRAWING WALLS AND FLOORS

It can often be intimidating when you first begin to draw a home to decide how thick to draw building elements such as walls, roofs and floors. There's no single correct answer but generally, to help you feel you're on the right track, an external wall would typically be between 350-500mm. Internal walls could be thinner as they won't need to be weather tight, so they could be drawn at roughly 125-150mm. Roofs and floors will often be somewhere between 350-500mm too. Stairs and corridor space shouldn't be narrower than 900mm. Also don't be afraid to check online or to use a ruler or tape and measure some buildings in the real world.

We hope this guide was helpful and good luck!



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