

**thermo**haus 

*future-proofed homes*



# Design Guide

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## Introduction

All our home designs are customer driven and we actively encourage clients to design their own home. We will be on hand to advise and guide you through the process. This guide sets out to explain the process you need to follow. But, if you are not sure about anything, you only have to ask.

To begin with, you must have a site. It is extremely unlikely that the house design you come up with can simply be plonked on the site when you get it. In all probability, it will just end up being a bad design, based on unnecessary compromises.

Before buying your site you need to undertake a full site assessment. Download our [Site Assessment Checklist](#) to guide you through the process. This will establish if the site is suitable for your requirements and determine the ideal position and form of your new home.

At the same time it is advisable to consult the Local Development Plan (LDP) which your local authority will have drawn up. This should be available to view on their website. The LDP will set out the planning policy for building homes in your area and may provide useful design guidance.

We also recommend you consult Planning Department staff to make sure they are happy with what you are proposing.

Armed with this information you can now set about designing your dream home.

**Before you start give your home an identity, a name which will be unique to you and follow you throughout the process.**

## The Budget

It is important to bear in mind the available budget when designing your new home. Just remember the greater the floor area, the greater the cost.

Make sure you don't forget anything when pricing up your project by referring to our [Project Cost Sheet](#).

As a rough rule of thumb, the overall cost of building a **thermohaus**<sup>®</sup> home to our standard specification, employing a contractor to undertake the entire project, works out at between £1,200 and £1,500 per square meter of gross internal floor area.

Avoid wasting space. Do you need big bedrooms and bathrooms? A poor layout may create long corridors. Have you minimised circulation space?

Also, try to keep the plumbing in one area. If this is not possible keep the number of areas to a minimum. Keeping kitchens, utility rooms, bathrooms and en-suites close together will reduce pipework and reduce cost.

Whilst large houses are best designed in multiple blocks, to reduce mass and minimise circulation space, it should be noted that roof junctions add cost.

## The Basics

Ideally your new home will maximise the benefits of natural light and solar gain. It is important to remember the sun rises in the east, passes through south and sets in the west.

All dayrooms (kitchen, dining, sitting) should face south / west. The only exception might be where there is a particular view you wish to capture, in which case rooms should be double or triple aspect so as to get at least one window facing south.

If you want early morning sunshine to enter bedrooms they need to face east. Utility rooms, bathrooms, en-suites and stores, which do not need much natural light can face north.

We dislike integral garages! They are an obvious potential source of fire and generally cold, draughty and smelly. As a consequence, they can have a negative impact on the comfort, energy efficiency and air tightness of your home. A detached garage not only removes any potential problems it is also much cheaper to build. This said, if it's a 'must have' it should be positioned on a north or east elevation.

## Layout

Design, is not merely an exercise in creating aesthetic appeal, it should provide a practical and cost effective solution. In the case of **thermohaus**<sup>®</sup> homes, we limit the size of each accommodation block to 4.8m wide x 10.2m long. This optimises the internal layout / cost by making best use of sheet materials, simplifying timber frame panel production and suiting standard roof truss centres.

Your design will comprise one or more 'blocks'. The layout of each block, at each floor level can be designed using our Design Sheet. Ensure each design sheet is identified by wing number and floor level. Each square measures 100 x 100mm or 0.1 x 0.1m. If your design uses two or more blocks they can be 'joined' either with a link block or simply butted together with a roof valley insert. The Modular Design section of our website illustrates some of the ways in which blocks can be arranged. You just need to focus on how you will move from one block to another.

Insert the internal layout of the rooms, working all dimensions inside the external walls. Allow 100mm for all internal partitions and a minimum width of 1100mm for corridors. The overall width of the stairs is 2100mm (wall to wall) with an overall length of 2400mm including half landing. *NB Building regulations require a 700mm long space at top and bottom to 'park' a chair lift.* The overall width of internal room doors and frames will be 920mm (single) and 1610mm (double). Built in wardrobes will be 600mm deep (internally).

If using the link / porch block they could just be left as either an 'empty' circulation space or a small dining, sitting, study area with a feature picture window. But, this valuable space could be used for other purposes. As a two storey link they could incorporate the stairs. As a single storey link or porch they could incorporate a study, utility, bathroom or shower room.

When designing the internal layout it is helpful if you can visualise the end result in 3D. Because at one and the same time as deciding where you want rooms you need to consider the impact windows, etc. will have on the elevations. As well as being right on the inside, you want your home to look right on the outside.

## **External Walls**

Wall finishes can be whatever you want. The external skin is there simply to provide character and weather resistance. It is not load-bearing. Ideally, the external wall finishes will reflect local vernacular or otherwise be sympathetic to the surroundings of your site.

Although we anticipate most customers opting for a single skin timber frame external wall construction, it is entirely feasible to add a cavity and an extra external brick, rendered block, stone, etc. skin around this timber frame skin.

Similarly, although our preference is for either a horizontal larch lap board or render finish to the timber frame skin, other finishes such as larch horizontal shiplap, vertical channeled / board on board cladding, western red cedar horizontal shiplap and vertical channeled cladding, tile/slate hanging and profiled metal sheeting are acceptable alternatives.

Some alternative external finishes will necessitate modifications to the roof line at the eaves and up the verges, so it is important that the external finishes are determined and fixed early in the design process.

If building on poor load-bearing ground you may wish to consider simply cladding the structural kit with, for example, timber weatherboarding. This will reduce weight and simplify foundation design. This form of construction is ideal for DIY self-builders since it requires no specific skills. A mix of external wall materials may enhance the design.

## **Roof**

Roof forms are either flat, mono-pitch or duo-pitch styles. But, they can be mixed. For example, you may have a single storey living accommodation block with a sloping roof (to create more space and height), joined by a flat roofed link block to a two storey sleeping accommodation block with a duo-pitch roof.

The mono-pitch roof slope is 15 degrees and results in an internal room height rising from 2.4m one side to 3.7m the other. The duo-pitch roof slope is 45 degrees and comprises either fink (W) or raised tie roof trusses.

The fink trusses are used in conjunction with a full storey height (2.4m) accommodation block with flat ceiling.

The raised tie trusses are used in conjunction with either a full storey height accommodation block with vaulted ceiling (ceiling height 2.4m at sides rising to 3.3m in centre, over a width of approximately 3.0m) or in conjunction with a two-thirds storey height (room-in-roof) accommodation block with vaulted ceiling (ceiling height 1.6m at sides rising to 2.4m in centre, over a width of approximately 3.2m).

As with external wall finishes the roof finish can be whatever you want. Similarly, it should reflect local vernacular or be appropriate to your surroundings.

Again, if building on poor ground, weight can be saved by using something like plastic coated profiled steel sheeting. This finish works well with timber cladding and, again, requires no specific skills.

## Windows

As standard we supply low maintenance uPVC windows with an anthracite grey finish outside and white inside (to maximise natural light). Other colour combinations of uPVC window are available at no extra cost. And, we can also supply timber and aluminium clad timber windows at extra cost.

All windows come double glazed as standard with triple glazing available at extra cost. To ensure maximum performance and provide a means of escape we recommend tilt and turn or top-swing (reversible) openable windows styles. However, less expensive top / side hung casement windows are also available.

Within certain parameters we can make windows to more or less any style, shape and size. However, it is important to note that the top-swing (outward opening / fully reversible) and tilt- turn (inward opening) maximum sash size (for both) is 1200mm wide x 1500mm high.

The alternative casement window types are limited to a maximum size for a side-hung sash of 600mm wide x 1300mm high and for a top-hung sash 1200mm wide x 1300mm high. In general, openable windows should be made as small as possible (to maximise weather performance), but large enough to comply with building regulations in respect of daylighting / ventilation and, in the case of first floor windows, means of escape in the case of fire.

Where large windows are required to maximise natural light or a view we recommend fixed pane windows. Individual fixed pane windows must be sized so that at least one dimension is less than 1.3m and the glass area is less than 3.0m<sup>2</sup>, so as to avoid specialist glazing units and excessive cost. Windows may be joined together to provide large areas of glazing.  
*NB Building regulations require that upstairs windows will need to provide adequate means of escape, in the case of fire, and be cleanable from the inside.*

Bay windows do not form part of the **thermohaus**<sup>®</sup> design concept. They may add aesthetic appeal but are disproportionately expensive for the practical benefits derived.

Dormer windows, like bay windows, do not form part of the **thermohaus**<sup>®</sup> design concept. They also may add aesthetic appeal but are extremely expensive in relation to the additional floor area provided. Moreover, they will give rise to medium / long-term maintenance liabilities.

## External Doors

As standard we supply an eye-catching front entrance door set in the form of the Palladio Rome composite door with matching sidelights, finished in anthracite grey outside and white inside (pictured).

Other door styles, colours and glass patterns from the Palladio Collection are available, subject to any cost variation.



Elsewhere, we supply standard uPVC doors with anthracite grey finish outside and white inside (to match the windows). Other colour combinations of uPVC window are available at no extra cost. And, we can also supply timber and aluminium clad timber windows at extra cost. All doors come double glazed as standard with triple glazing available at extra cost.

External doors come as pre-hung door sets, ready to simply fit in the opening. Door sets will be 1000mm wide x 2135mm high for single doors and may be up to 1800mm wide x 2135mm high for French doors. Sidelights are available, but a waste of money if too narrow.

At least one external door will need to have a low threshold to provide wheelchair access.

### **Patio Doors**

The only patio door available is the tilt and slide design in uPVC. The standard finish is anthracite grey outside and white inside (to match the windows) which can be manufactured up to 2400mm wide x 2100 high.

Doors can be joined together and we can supply coupled sidelights to provide wider glazed areas. It should be noted, however, that openings over 3m wide may cause structural issues with lintels requiring intermediate support.

### **'Velux' Roof Windows**

Wherever possible models CK02 and CK04, which fit between trusses, should be used. If larger 'Velux' windows are desired a 2-ply girder truss will be required each side.

Where 'Velux' windows are desired on opposite sides of the roof it is important they are positioned directly opposite each other and not over-lapping, so as to maximise the use of the girder trusses.

### **Internal Doors**

As standard we supply the Howden Dordogne oak lined door and it's glazed counterpart. Other door styles from the Howden range can be supplied, subject to any cost variation.

Room door sets (including those for kitchens, bath/shower rooms and cloakrooms) are based on an 838mm (2'9") wide door leaf and have an overall width of 915mm (920mm wide opening in partition) for a single door set. Double door sets, using 762mm (2'6") doors, have an overall width of 1605mm (1610mm wide opening in partition). There must be a minimum 50mm partition nib showing either side of the door opening.

Cupboard / wardrobe door sets are based on a minimum 686mm (2'3") wide door leaf and have an overall width of 765mm (770mm wide opening in partition) for a single door set. Double door sets (using the same door size) have an overall width of 1455mm (1460mm wide opening in partition). Again, there must be a minimum 50mm partition nib showing either side of the door opening.

Alternatively, if cupboards / wardrobes are over 1200mm wide (internally), we can offer a sliding door system, comprising either safety backed mirror or veneered MDF door infills, which offers three optimum widths being 1200 / 1800 / 2400mm. But, any width between 1200 and 2400mm can be accommodated.

### **Conclusion**

Hopefully, this design guide will help you design your ideal home. But, don't be stuck! We are only a call or an email away and very happy to guide you through the process.