

2003

BEN & WENDY BUILD THEIR DREAM HOME...

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2004



wood. for good.

INTRODUCTION

This is the story of the dream house that Ben and Wendy built. A beautiful contemporary home to bring their two children (Isabel and Freddy) up in, with lots of natural light, exciting space and stunning views. A home that will open out to the garden in the summer, but be warm and snug in the winter. That will make the least possible impact on the environment and cost next to nothing to heat, thanks to timber frame construction and first class insulation.

Ben works for the environmental charity, Forum for the Future. He's taken a 6-month sabbatical to break the back of the job. Wendy has given up her job at Green Futures magazine to work full time as project manager.

As 6 months stretch into 18 months they learn the hard way how best to avoid your dream turning into a nightmare....



STARTING OUT



FINDING A PLOT

“ My attempt to realise our dream home began with the sale of our house. After six months of searching, we finally found the plot we wanted – two thirds of an acre plus a dilapidated wooden bungalow.

To the trade, we become part of a trend called 'bungalow munching' – with a plan to live in the old while building the new. The next step is raising finance. We need a mortgage now to buy the existing property, and will need more finance later for building the new house. ”

TIPS

- Try the following websites for details of suitable building plots for sale:
www.plotfinder.net
www.plotsearch.co.uk
- Whether you're buying a property to rebuild, or a building plot, check with the local authority planning department before you commit yourselves.



STARTING OUT

GETTING A MORTGAGE

“ First stop The Ecology Building Society – a natural choice for us. But our application is turned down because they don't fund the replacement of viable buildings.

Next stop Intelligent Finance. The initial advice that the building is not mortgageable but that the plot is worth what we want to borrow, becomes irrelevant when we are subsequently told they don't lend on self-build. There's no way to get back the £250 we spent on the survey.

A brief flirtation follows with Buildstore's Accelerator mortgage, voted the Best Self Build mortgage three years on the trot. They will release lumps of cash prior to major construction events during a build, and there are various arrangements available for living in your existing home while you build another. But we balk at another survey fee.

So it's back to the EBS. They are sympathetic, and a few days later, after their surveyor reports on our bungalow, they concede that we are likely to want to replace it and that they are prepared to fund it.

TIPS

- Establish the conditions of the loan before paying for a survey
- Shop around
- Be prepared to present your proposals in the best possible light.

DESIGNING THE HOUSE

We settle on a local practice – Heath Avery Architects. They meet all our criteria: they're keen, they know the planning officers, and they want to skill up on eco-build.

The brief is set: family home, high energy-efficiency, four bedrooms, timber construction.

We're keeping it simple. Timber is still very hard to beat on both performance and sustainability, and a good thick layer of insulation easily trumps photovoltaic cells as a way of reducing energy consumption. Heating will be from a wood-burning stove, with back up from a ground source heat pump. Even without the woodburner and heat pump, we should be able to get total energy bills down to about £600 per year and CO₂ emissions to 5.6 tonnes – roughly half what a house that just meets building regulations would achieve.

Meanwhile we need a geological survey, advice about trees, ideas for materials and detailed technical designs that satisfy building regulations.

TIPS

- Employ a qualified architect or engineer at the beginning of the design process
- For a list of local architects visit www.riba.org
- Budget each phase of the project – and make sure you provide a contingency!
- Research products to ensure you get the performance you want at the price you can afford
- Ensure products comply with Building Standards and Regulations (for example fire doors)
- Take out insurance to cover the work and any related liabilities.

PLANNING PERMISSION

The Council has seen version one of our plans and they don't seem too alarmed. Next step is a full submission and public consultation. Which reminds me to go and talk to my neighbours about the design and take their concerns on board.

The planning decision hinges on two policies, both relating to the Area of Outstanding Natural Beauty in which our plot is situated. The first is volume – we are replacing an existing building with another 40% larger, which breaches the Council's policy of 10% maximum increase. The second is 'that development should enhance the natural beauty of the area'. This is where we hope to score points.

Three days before the committee meeting we receive the planning officers' report. They recommend approval but also mention the volume increase breaches policy.

Members of the committee air different views, but eventually the proposals are passed on the recommendation of the Head of Development Control. And that's it! Subject to approval by the Government Office for the South West, we have our permission. ”

TIPS

- Take time to understand planning policy before conceiving your project
- Take your neighbours' views into account
- Make sure you make your case clearly
- Contact your local planning office for advice.



September



October



November

THE GROUNDWORKS

“ At the outset I had assumed we would just dig holes to put a small concrete ‘pad’ underneath each of the main vertical posts. This very low impact method of foundation for timber frames is the way the simplest self-assembly houses are built. But the slope, clay soil and abundance of trees make ours an ‘interesting’ site. The options come down to concrete strip foundations versus pilings.

The strip solution requires trenches three metres deep, nearly 50 cubic metres of concrete, lots of invasive digging, lots of clay to landfill, lots of big delivery vehicles, and high levels of embodied energy in the concrete itself. Pilings are probably lower impact, but they must go deeper still, and mean we have to get specialist machinery on site – probably from further away. As we wait for quotes from piling companies, we are aware how easily cost can emerge as the defining factor.

We finally choose to go with concrete strip foundations, mainly because of cost and availability. The design calls for around 40m³ of concrete in the foundations. To keep the impact down, we go for recycled aggregates (made of crushed concrete) and a concrete blend low in cement, but not low in ‘cementitious materials’, as ash produced as a waste in steel-making replaces some of the cement.

I won’t be digging these footings myself (they are too massive), so we find some ground-workers and agree a start date. By day four we have a mighty hole in the ground, and three of the trenches dug. Day five is the ‘big day’ - when we pour the concrete.

By 8am the rain is already building up. The concrete pump truck arrives at 9, and by 10 we are ready to go. Our building inspector signs off the trenches as OK to pour. At midday the rain changes up a gear. Trench two is collapsing as fast as we can dig it out. Trench three is also falling in, though it’s hard to say how fast as it is full of water. Our 40m³ of concrete becomes 50, then 60, and finally 65 before we call it a day with one trench still to go.

TIPS

- Take time to assess the nature of the ground before deciding on the type of foundations. Dig pilot holes
- Take into account site access and stability if heavy machinery is going to be needed
- Try and plan groundworks for dry weather periods
- When wet conditions cause wet ground to collapse, use suitable shuttering materials (e.g. plywood and timber) for deeper footings.

DEALING WITH OUR DOINGS

If you’re building a house, there’s just no way round it – dealing with dumping, that is. I’m not against mains sewerage but I do think that living sustainably requires us to reconnect with ecological reality at both ends (where food comes from, where it ends up), so I’d like to see more processing of waste on site.

Which is lucky, because we’re not on mains drainage. Our options range across a spectrum from composting methods (where nothing leaves the site) to cesspools (massive tanks which retain everything and have to be emptied every couple of weeks). I have fancy ideas involving reed beds, mini processing plants and something I’ve heard of called an Aquatron. But our engineer has proposed a septic tank. In the end we settle on this option, partly because it’s simple, and partly because we are a bit worried about the reaction of any future buyers to the prospect of having to shovel the composted solids out of our Aquatron.

With a bit of luck, and if we’re careful what we put down the loo, it will be a year at least before it needs emptying. ”

TIPS

- www.aquatron.se
- Reed bed sewage treatment systems are an increasingly popular environmentally-friendly solution – waste water can be successfully treated by moving it slowly and carefully through a mass of reed roots.





December

THE TIMBER FRAME

“ If you plan to build a house, my first piece of advice would be to plan to build it in the winter. That way, you have a reasonable chance of building it the following summer. Unfortunately, no-one was around to tell us this a year ago. Already the start of our building work has slipped from May to December. Still, at last we are on our way up.

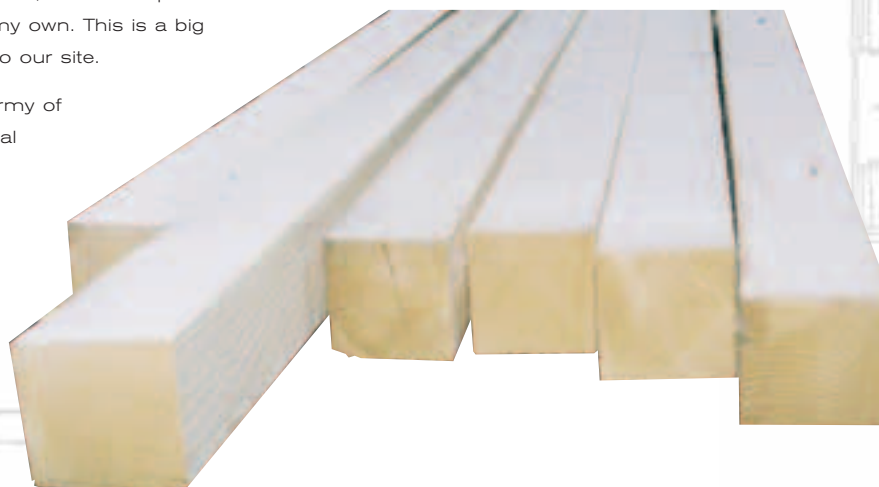
We've chosen a system of engineered timber called Masonite, a build method that meets our rather demanding criteria of high environmental performance and ease of self-build on a site with poor access. Masonite beams are I-shaped in section, with the top and bottom bar of the I (the flanges) made of solid timber and the middle section (the web) made of a fancy hardboard called K40. The resulting beam is perfectly straight, comes in lengths up to 12m, depths up to 550mm and outperforms solid wood's strength-to-weight ratio.

Using Masonite means that, ridgebeam aside, there's no piece of timber in our house that I can't lift on my own. This is a big plus, as we've no way of getting a crane to our site.

Helping me build the frame is a ragged army of regulars and volunteers, now featuring local talent in the form of my next door neighbour who is nailing on the panels that form the external wall sheath as fast as I can whack the frame up.

I really love working with wood – the smell, the feel, the knowledge that the environment isn't suffering. Oh, and the blokey tools – nailguns, pull saws, toolbelts... it's a hands-on build for me!

Will we be ready for the windows, when they arrive on 22nd December? The walls for the ground floor go up and soon we're working on the intermediate floors and the main timbers for the roof systems. The frame is quick to build and, though we still lurch from crisis to crisis, in the war that is self-build a few battles are finally going our way. All we have to do now is finish the frame, insulate and screed the floor, build the partition walls, plumbing, wiring, heating, roofing, cladding, dry-lining, internal joinery, the staircase, kitchen, bathroom... decks... parking area... ground source heat pump... demolition of the bungalow... ”



COMPLETING THE EXTERNAL WALLS (SPRING 2004)

Once the frame was up, the external walls were clad inside and out with Panelvent boards, ready for insulation, and a mixture of lime render and timber cladding was used to provide protection from the elements.

- Masonite timber frame systems are made in Sweden and distributed by Panel Agency UK (www.panelagency.com) who also offer site advice and installation
- Timber frame is the most popular construction method for self-build because of its simplicity, speed of erection and good insulation properties
- Systems meet or surpass building regulations
- Manufacturers provide a range of solutions, from one-offs to complete kits you can buy off the page. They can also help with installation
- For more information and a list of manufacturers and suppliers contact the UK Timber Frame Association at www.timber-frame.org.uk

TIPS





January



February



WINDOWS

“ The big spend items in our budget have been the timber frame and the windows and we’ve tried really hard to get these right.

As I watch the windows going in I’m pretty sure we made the right decisions about both. The frame has withstood several months of torrential rain, with the engineered timber beams and plywood shrugging off water and allowing work to go ahead when bricklaying would have had to stop. We’ve imported our windows from a Danish manufacturer called Rationel. They are brimming with eco-cred, with low-emissivity, argon-filled double-glazing, surrounded by lovely thick heartwood from sustainably managed pine forests. They’re also pre-finished with water-based paints - and five tonnes of them have arrived on site.

Our 14 rooflights are from VELUX and are going in next week. They’ll have built-in blinds and remote control so that we can let some of the excess heat out of the building in the summer. They are also built to high environmental standards, and the U values (indicating the thermal performance) of my windows are putting us on track for the low overall heat loss we have set out to achieve. Windows formed a major part of the design, providing panoramic views as well as stunning lights. ”

WITH OVER 60 YEARS’ EXPERIENCE, VELUX IS THE WORLD LEADER IN ROOF WINDOWS.

VELUX windows are certified to BS EN ISO 4001:1996 and use high quality engineered timber along with gas-filled low-emissivity glazing units to achieve outstanding performance.

They are quick and easy to install with patented installation brackets.

VELUX Skylights incorporate upgraded PROTEC STAR glazing, a pre-installed motor and rain sensor, which automatically closes the window when it starts to rain. The electric windows can be opened and closed using an infra-red remote control positioned anywhere in the room.

High environmental standards are met by using timber from well-managed forests, recycled aluminium and water-based finishing treatments.



TIPS

- Manufactured wood windows are available in bespoke, as well as standard metric or imperial, sizes
- They come fully-finished, ready double-glazed, with security features and ironmongery meeting secured-by-design and insurance requirements, and Part L compliant
- Pre-installed double glazing can feature clear, obscure, laminated, leaded or toughened safety glass, all compliant with NHBC recommendations
- Windows can be supplied direct from the factory with a range of finishes, from a base coat stain, offering short term protection before final finishes on-site are applied, to a full finish in a variety of stains or paint colours, eliminating the need for on-site finishing altogether
- Members of the British Woodworking Federation’s TWA Scheme (which is now working in partnership with BSI Kitemark) can offer an 8 year guarantee on finishes and a 30 year guarantee on the timber
- For details of window manufacturers and suppliers visit www.bwf.org.uk
- For details on VELUX’s range of roof windows visit www.velux.co.uk
- For details on Rationel’s range of windows visit www.rationel.com



ROOFING AND STRUCTURAL FLOORS

THE ROOF

“ The roof uses 3,894 slates. Originally we had hoped to use reclaimed slates, but couldn't find the right size in any reliable state or quantity. So we abandon reclaimed and look again at our options. The cost hierarchy is depressingly familiar. Most sustainable and most expensive – Welsh. Next up, medium on both – Spanish. Cheap and cheerful – Chinese.

And these are not minor price differences – the Welsh is four or five times the cost of the Chinese. We are talking about the difference between £3,000 and £12,000, so I have little option. Chinese it is. ”

TIPS

- Use quality preservative-treated slating/tiling battens that comply with BS 5534
- Use galvanised fixing nails where appropriate
- For more info contact www.johnbrash.co.uk

PLYWOOD

The first and mezzanine floors, to be finished with solid timber floors, were constructed using WISA 'spruce deck' from UPM Ltd, which has a protective plastic peel-off coating to allow all-weather working.

- Plywood is used in a wide range of applications from wall sheathing and flooring to designer interiors and furniture
- It is available in a variety of species, face qualities, finishes, thicknesses and dimensions (standard panel size: 1220 x 2440mm; standard thicknesses: 12, 15, 18 and 22mm)

- Typically birch ply is used for more decorative applications and spruce for more constructional applications
- Spruce plywood makes a durable flooring panel, ideal as a substrate. Strong and rigid, with good load-bearing properties, panels allow longer span measures
- If you are using plywood structurally, ensure it is listed in code BS 5268-2:2002
- For information visit www.wisa.com

Installation

When using on-site, store panels in dry conditions, on a flat, level surface, clear of the ground. Loose-lay the panels 24 to 48 hours before fixing.

Joisted floors

- Joists must be treated 'dry', or proprietary I-beam
- Regularise joists to provide an even bearing surface
- Lay panels with the face grain parallel to the span
- Support all short edges on a joist; stagger end joints
- Support the perimeter continuously on noggins
- Allow a perimeter expansion gap of 2mm/metre width/length of the floor, with a minimum 10mm gap
- Use a waterproof PVA adhesive to glue joints and panels to joists
- Use galvanised annular ring shank nails 2.5 times the panel's thickness, or countersunk screws recessed 2mm below the panel surface, to fix panels to joists
- Space fixings not less than 10mm from the panel edge, at 150mm intervals round the edge and at 300mm intervals elsewhere.

TIPS

ENGINEERED TIMBER COMPONENTS

Where exceptional strength was needed, different engineered timber solutions were used: LVL for lintels and floor trimmers; glulam for the corner posts, purlins, ringbeams and central ridge. These elements also form part of the aesthetic of the design.

LVL (LAMINATED VENEERED LUMBER)

- Manufactured from rotary peeled veneers glued into continuous panels
- High strength-to-weight ratio, making site work easier and more cost-effective
- Dimensional precision, allowing greater design opportunities
- Panels can be cut to make specific beam sizes or planks
- Available as studs and beams for load-bearing structures, with grain running longitudinally throughout the veneers
- Available thicknesses from 27mm to 90mm
- Available lengths up to a maximum of 26m
- For information on LVL contact www.finnforest.co.uk



February



March

THE ROOF STRUCTURE

“ The design of the roof was complicated by the large spans required to provide an open-plan space within and by the need to house the banks of VELUX rooflights, which would provide glorious, yet controlled natural lighting.

The solution was to use a central glulam ridge beam, around which the Masonite lightweight I beam timber frame could be constructed, finishing off with Panelvent sarking boards, battening and natural slates. ”



GLULAM

- Beams or columns made from layers of parallel pine or spruce lamellas, cut following the grain and glued together
- Increasingly used for long span load-bearing structures
- Better strength-to-weight ratio than steel
- Good looks
- Good fire performance
- Good environmental credentials
- Beams can be tailor-made to size, but are also available in a range of standard sizes:
 - Standard widths: 90mm - 240mm
 - Special widths: 365mm and 290mm
 - Standard heights: up to 2050mm
 - Planed posts: 90 - 200mm width
90 - 420mm height
 - Maximum length: 31000mm

For information on glulam visit www.donaldsontimber.com and www.ajlaminatedbeams.co.uk

INSULATION

“ A huge lorry-load of newspapers arrives and, best of all, someone has saved me the trouble of reading them by mincing them up.

This is my insulation: Warmcell, made of old news. It is pumped in through holes in the walls and roof until it fills the voids and turns the shell we've built into a super-insulated house.

Once it's done we can get on with the bulk of our 'first fix' – all that piping and wiring that disappears from view.

LINING THE INTERNAL WALLS

With that out of the way the walls can be lined – and here we're replacing familiar plasterboard with another product with sustainability appeal. Though still using some gypsum, there is a new generation of drylining boards that perform better for sound and heat insulation and strength, largely because they include a high proportion of recycled paper, or in our case, timber thinnings and sawmill waste. In Sasmox boards the gypsum itself has already been used in an industrial filtering process. They even save us the bother of plastering. ”

TIPS

- www.sasmox.fi
- www.panelagency.com



March



April



May



June

EXTERNAL FINISHES

“ Already the house looks, feels and smells fantastic. At one end of the wooden spectrum, recycled newspaper insulation is functional and efficient – good enough. At the other... well in a clearing in the woods last night, surrounded by huge baulks of timber, we watched the oak trees we cleared from the plot being sawn into the boards which will protect our walls from the elements, and it was really magical. ”

EXTERNAL CLADDING

Green oak cladding was used as a design feature on some of the external walls. Before the build began, Ben had removed two oak trees that stood in the middle of the site. They were taken to a local sawmill and sawn into boards which could be cut to size on site.

Having installed waterproof membrane and battens, the boards were bevelled, pre-drilled and fixed in place using stainless steel screws and washers. The boards form a rain screen with generous expansion gaps which allow water to drain well. Particular attention was given to the details around external corners and windows. For further fixing information visit www.asktrada.co.uk

TIPS

- Suitable softwoods include Nordic redwood (pine), Nordic whitewood (spruce), larch and Western red cedar. Use only the higher joinery grades where possible
- Pine and spruce should generally be pressure treated with preservative, but larch and Western red cedar can be used untreated if the sapwood is excluded
- Temperate hardwoods, like European oak, are increasingly used instead of tropical hardwoods because of concerns about sourcing sustainable timber
- Ensure any cut ends are treated with preservative
- Fix onto pre-treated battens
- Battens should be at least 38mm wide, at least 19mm thick and fixed at 600mm centres
- Ensure joints meet centrally on a batten
- Allow for draining and ventilation in the cladding
- Use timber at least 150mm wide
- Use tongued and grooved or rebated cladding for vertical installation – with the tongue uppermost
- Use shiplap-style cladding for horizontal installation
- Always basecoat the back of the cladding before fixing
- Ultra violet light can cause timber to take on a grey colour. Use suitable surface treatments to add protection and visual finishes
- For more information on durability of specific species consult BS EN 350
- For more information on external cladding visit www.asktrada.co.uk

LIME RENDER

“ Lime rendering may be a traditional technique experiencing a resurgence, but it's still something of a sub-culture amongst the wet trades. Its sustainability advantages are pretty clear. Lime is less energy-intensive to produce than cement, and goes on to re-absorb some of the CO₂ emissions that it creates as it cures.

But we couldn't find anyone locally who was prepared to use it, and certainly not on top of the Heraklith boards we've used as a base. This is a kind of shredded wheat material, wood shavings dipped in magnesite, that gives us some more insulation and something to attach the render to. Very popular in Austria, it seems, and a much friendlier alternative than the stainless steel mesh local plasterers are recommending.

Gail and Julie, who've travelled down from North Wales to plaster over it, do a top job, and the locally-sourced sand in the render gives the house an authentic Cotswold look. And that's the outside finished. ”



July



August



September



October

DECKING

“ Outside, the decks are going up, and this is no place to skimp on quality as they will take the worst of the weather and, on our build, play a major part in the look of the house. Arbordeck, part of Howarth Timber, come up trumps with a design that is contemporary without being urban, and I think adds the link between indoors and outdoors that we were looking for. At last I can imagine sunny summer days soaking up the view across to the Malverns as the barbecue reaches cooking heat and cold beers nestle reassuringly in the ice bucket. ”

TIPS

- Deck installation should be well planned and quality components used
- Look for the "Deck Mark" logo, a quality assurance scheme offered by the UK Timber Decking Association, covering not only the timber components, fixings and finishes, but also the installed deck itself, as long as "best practice" construction methods have been followed
- Although not all decks require planning permission, it is wise to check with your local authority before starting work, particularly if there are raised levels, or if the deck borders a neighbouring property
- Building regulations approval may be needed
- Stability is vital for raised or multi-level decks, so check load and weight calculations with a structural engineer
- Where decks are to be built on to a new build, structural calculations may be needed
- Remember to plan access for underground services before starting.



TIPS

- Use a weed-suppressant membrane covered by gravel under the deck
- If the deck is adjacent to a house, ensure adequate drainage away from the building
- For more information contact www.tda.org.uk

SCA's new modular DIY deck system, 'Deck in a Box' helped form a deck area that extended the front entrance. The system's versatility meant a decking walkway, complete with balustrading, could be created, leading to the entrance deck.



July



August

FLOORING

“ We’re using lots of timber in the internal finishes; oak floors in the main living areas, pine floors elsewhere, oak for the staircase, ash doors, factory finished pine panelling for ceilings and birch plywood for some of the walls, shelving and worktops. ”

UNDERFLOOR HEATING

Underfloor heating combines efficiency with aesthetics and there are plenty of systems suitable for installation under a solid timber floor.

TIPS

- Where timber flooring is to be used with underfloor heating follow the flooring and heating manufacturers' advice about fixing
- Only use timber flooring that has been kiln-dried down to 8% moisture content
- Underfloor heating: Nu-Heat (www.nu-heat.co.uk)

PRE-FINISHED TIMBER FLOORING

Solid timber flooring was chosen for its environmental credentials and its durability – as well as its look and feel.

Nowadays there is a wide range of specialist timber flooring available produced to high specifications. They should be kiln-dried to 8% moisture content, have all edges tongued and grooved, and can come with a variety of factory applied finishes.

European oak, with a natural finish, was used for the heavy traffic access and living areas.

For the bedrooms, a Swedish pine flooring was used, pre-finished with white oil.

TIPS

- Available in thicknesses from 13mm to 30mm, widths from 70mm to 250mm and lengths from 1200mm to 5700mm
- Pine flooring manufacturer: Dala Floda (www.dalaflodgolv.se)
- Oak flooring manufacturer: Hoebeek (www.hoebeek.be)
- Flooring supplier: Taylor Maxwell Timber (www.tmtgroup.co.uk)
- For a list of flooring suppliers visit www.ttf.co.uk

LAYING A TIMBER FLOOR

1. Open pack and leave boards in the room for 24 hours before laying (48 hours for hardwoods)
2. Use 8mm spacer blocks against all walls to allow for movement
3. Use a specialist underlay to reduce noise transmission – in any building project, check you are complying with Building Regulations
4. Use a string to ensure you start with a straight line
5. The distance between joists should not exceed 600mm. As the boards are end-jointed, joints don't always have to be over joists
6. Use a piece of board as a hammering block
7. Secret nail, or screw, diagonally through the tongue into the joists. Special small-headed screws with cutter ribs can be countersunk at 45° without splitting the tongues. It may be necessary to drill pilot holes when fitting hardwood flooring
8. Use a punch to sink the nail without damaging the board
9. Glue the ends of the boards, not the sides, if you're nailing
10. To cut round pillars etc., lay the board next to the obstacle and mark your cutting line using a Try square. Don't forget to leave an air gap
11. You may need to cut the final board lengthways with a circular saw. Don't forget to leave a gap between the board and the wall
12. A special tool is available for helping get the last board in place.



September



October



TIPS

- For best results use a fixing clamp (available from builders' merchants) to hold the boards together
- A floor wider than 5 meters should be split into sections using a threshold plate to allow for movement
- Ensure the underfloor is clean, dry and free of projections
- On ground floors use a 1000 gauge polythene sheet as a vapour barrier in addition to any required acoustic underlay
- To glue, turn the board the wrong side up and hold it diagonally toward you. Glue the upper edge of the tongue – when the board is turned the right way up the glue will run down it
- Apply glue lengthways and widthways.

SOLID TIMBER FLOORS

- Add value to a home
- Last a lifetime
- Are easy to install, maintain and repair
- Are versatile – different looks can be created by stains, paints, stencils or a variety of oils and lacquers
- Are healthy – easy to clean and free from dustmites.

THE STAIRCASE

The staircase initially posed a few problems. Oak was required for both the stairs and the newels and rails. The sections would be heavy, hard to find, and the cost high.

The solution was to use engineered oak – laminated strips of solid oak bonded together under pressure to produce a strong and defect-free product. The engineered sheets are easily converted into the various sections for treads, risers and rails.

TIPS

- Engineered oak supplied by Timbmet Ltd (www.timbmet.com)
- Joinery by BC Joinery, Cheltenham, specialising in a wide range of applications from "straight" stock flights to more complicated special order winding stairs
- Manufactured kits are available, complete with landings, balusters and spindles, providing a one-stop staircase solution that meets building regulations (Part K of the building regulations applies)
- For more information visit www.bwf.org.uk





July



August

DOORS AND SURFACES

“ Sourcing good quality sustainable wood can be tricky but we’ve been lucky in getting some advice from the timber campaign group wood. for good. The doors are simple flat oak-veneered doors from STP Joinery, but the quality of the veneer is a good match for the solid oak door frames, architrave and skirting.

We’ve also taken delivery of the worktops, in 30mm WISA birch plywood from UPM-Kymmene Wood Ltd, and as the first one goes in we’re delighted to get exactly the look we were hoping for. ”

TIPS

- Pine skirting, door frames and architraves supplied by SCA (www.forestproducts.sca.com)
- Use joinery grade birch plywood for its strength and smooth, hard surface suitable for staining, painting or varnishing
- Oak skirting, door frames and architraves supplied by Timbmet Ltd (www.timbmet.com)
- To ensure kitchen worktops can be made in single sections, use 1500 x 3000mm size sheets
- Use plywood to make sturdy, decorative bookshelves

INTERIOR FLUSH DOORS:

- Framework made from specially kiln-dried solid softwood
- Finger jointed timber may be used, giving straight stiles
- Pre-finished flush doors available in many surfaces and finishes
- The use of laminated components works towards finished product solutions
- Quality grade plywoods used to form smooth flush panels suitable for painting or staining.

INTERIOR PANEL DOORS:

- Made from solid timber, typically pine
- Timber kiln-dried down to 10-12% to ensure stability
- Softwood specially graded and sanded for easier finishing
- Timber specially selected at the mill to eliminate defects
- Engineered material, such as finger jointed timber, commonly used to produce completely straight components for stiles and laminated or veneered timber.

EXTERIOR DOORS:

- Flush and panelled doors available in a wide range of patterns and sizes in both softwood and hardwood
- Available with glazed panels.

FIRE DOORS:

- Fire doors are engineered safety devices and MUST be fitted and maintained correctly, preferably by a trained installer
- Fire doors must comply with BS 476 part 22 and must be fitted using compatible products-frames, seals, hinges, closers and ironmongery
- Use doors manufactured under the BWF-CERTIFIRE Fire door and Doorset scheme, which offers traceable manufacturing and quality information
- Check where you need to use fire doors and fire door sets with your architect and local authority, for example if planning to create a room in the roof, or a loft conversion, or between the house and garage space
- Fire door assemblies must be fitted with an intumescent strip either in the two sides and the head of the frame or in the top and long edges of the door in accordance with the door manufacturers' instructions.

INTERNAL PANNELLING

The whole expanse of the open roof, round the banks of VELUX windows, is clad internally with no less than 160 square metres of solid pine tongue and groove panelling, in a white oil factory finish.

TIPS

- Bricolux pre-finished pine panelling manufactured by Hoebeek and supplied by Taylor Maxwell Timber Ltd
- Use panelling on walls and ceilings to add character to a room
- Use panelling to add thermal and acoustic insulation and to mask defects
- Boards come tongued and grooved, in a variety of pre-finished stains and finishes, from 7mm to over 25mm thick and from 70mm to over 150mm wide
- For best results internally use timber manufactured from joinery grades and kiln-dried to 8-12%
- Store in the room for 24 hours prior to fitting
- Fixing methods range from fixing to battens with nails or metal clips, to gluing, depending on the location and surface to be covered
- Allow for expansion gaps around the perimeter of the panelling, particularly across the width of the boards – skirting boards and moulded trims can be used to cover these gaps
- Consider sound insulation between walls and floors to prevent noise transmission.



July



August

FINISHES

ICI offers a range of products and services to make life easier for self-builders, such as Dulux Select Decorators and Mousepainter, a web-based colourscheming tool that allows you to visualise your colour ideas on screen, as well as various design tools that can help you achieve the perfect living space.

A wide range of colours is available across both paints and woodcare. Enhancing the beauty of wood is as much a part of overall design as choosing paint colours for a wall. ICI Woodcare offers a range of Natural Wood Colours for a traditional, natural wood look, a Designer Range for contemporary semi-transparent finishes and an Opaque colour range of solid colours which allows the texture of the wood to be seen.

PRESERVATIVE TREATMENT

When using softwoods, like pine or spruce, externally, specify timber that has been pressure treated with preservative to extend service life and protect against all forms of decay and insect attack. This is an investment that will pay off in the long-term and maintain the integrity of the timber and the construction.

New generation wood preservatives such as Tanalith E (Arch Timber Protection) and Osmose Naturewood (Osmose Ltd) are now readily available and provide continued confidence in the performance of preservative treated timber.





September



October



November

THE DREAM COMES TRUE

“ As we enter the home straight, I'm finding the prospect of living in a structure that is about 90% wood really uplifting. Our earlier concern that the house would end up looking like a sauna is now giving way to a serious 'wow' factor as the timber finishes go in. Already it looks, feels and smells fantastic.

The light and space of a contemporary design is a big plus on this north-facing slope. The airiness we've achieved with Passivent passive stack ventilation and the smell of so much timber in the structure and finishes adds to the pleasant sensory cocktail, as does the knowledge that we've minimised the use of synthetic materials. Even the minor touches like the Beam central vacuum cleaner make me feel this is going to be a relaxing place to live.

We've demolished the bungalow we were living in next to the house, really opening up the south side of the building to the sunlight. In the process we've converted about 50% of the garden to a mud bath. The remainder was OK until we set about burying the 'slinkies' – the long, coiled plastic pipes that will fire our ground source heat pump. Digging two trenches 40 metres long is a challenge even in a big garden, but they're in, and we console ourselves with the thought of virtually free heating and hot water once the system is commissioned. Manufacturer Viessman claim around 400% efficiency, meaning that for every 1kW we put into the heat pump it will extract 4kW from the ground. It's a form of solar power, using the fact that the ground is warmed by the sun to a constant 11-13 degrees. This is sufficient energy for the heat pump to convert large quantities of water to 50 degrees.

As I write in mid October, the system is yet to be fired up, but it's not a problem as we're finding our highly insulated house

seems to stay at about 19-20 degrees without any heating apart from warm bodies, lighting and a bit of cooking.

We've started on the wooden walkway. The big task still ahead of us is the building of the front deck, which had to wait until the bungalow had gone and the slinkies were in. We're starting work this week, with the timber from Arbordeck already on site. It will really put the icing on the cake and ferry us over the mud while we wait for the grass seed to germinate. Months late, and virtually double our budget, the new Southernwood is finally approaching completion.

We've been working for over a year on the build itself and nearer three on the project. 100,000 nails later, what have we learned? I'd love to see more people self-building, and think it has an important contribution to make to more sustainable lifestyles, but it's a real slog, and needs to be easier.

IF YOU FANCY GIVING IT A GO, HERE ARE BEN'S SUSTAINABLE SELF-BUILD RULES OF THUMB:

1. Think of a number. Double it. Everything takes longer and costs more than you hope. The more you plan, the fewer surprises there will be, but you still won't know exactly what you'll find the day the spade goes into the ground.
2. Work hard on relationships. My wife's top schmoozing skills were the key to getting the land, the planning permission, the finance and most of the good deals. In the process we've gained a lot and so, I think, have the people we've worked with.

3. Pay peanuts, get monkeys. Drive too hard a bargain with professionals and contractors, and guess what? They cut corners and you lose out. Trust is a rare commodity in the chaotic world of construction and sometimes it needs nurturing with cash.

4. Read 'A Pattern Language' by Christopher Alexander. You can get no end of advice on environmentally responsible building, but compelling literature about what makes buildings feel good is harder to come by. Alexander's classic is a real source of inspiration, and worth a read even if you're only tarting up a room.

5. Do the simple things. Not sure if you'll be able to afford photovoltaics or a wind turbine? Insulate to the max and see if you still need them.

6. Go for timber. If wood were invented today, it would be hailed as a miracle material. You may not think of your house as a carbon sink, but build it with timber and it's keeping carbon locked up for the lifetime of the house (and maybe longer). Wood is non-toxic, reusable, fantastically durable, good to work with and beautiful. How many plastic windows will still be working 200 years from now?

7. Push sustainability. Though there is no shortage of products and methods for more sustainable construction, they're not mainstream, and most tradesmen, suppliers, specifiers, designers and inspectors won't be familiar with them. Congratulations, you are now a one-person training programme for all of them! ”





USEFUL CONTACTS

Thanks to the following companies who were involved and helped with this project:

GLULAM/LVL

A J Laminated Beams Ltd
Tel: 01284 828184
www.ajlaminatedbeams.co.uk

James Donaldson & Sons Ltd
Tel: 01592 752244
www.donaldsontimber.com

Finnforest (UK) Ltd
Tel: 020 8420 0777
www.finnforest.co.uk

PLYWOOD

UPM Kymmene Wood Ltd
Tel: 01628 513300
www.wisa.com

TIMBER FRAME

Panel Agency Ltd
Tel: 01474 872578
www.panelagency.com

STAIRS

Timbmet Ltd
Tel: 01865 860300
www.timbmet.com

DECKING

Timber Decking Association
Tel: 01977 712718
www.tda.org.uk

Arbordeck
Tel: 01469 535427
www.arbordeck.co.uk

Distinctive Landscapes Ltd
Tel: 01623 647317
www.distinctive-uk.com

MODULAR DIY DECKING SYSTEMS

SCA Timber Supply Ltd
Tel: 01724 784784
www.forestproducts.sca.com

WINDOWS

Velux Company Ltd
Tel: 01536 510020
www.velux.co.uk

Rational Windows Ltd
Tel: 01869 248181
www.rational.com

SOLID TIMBER FLOORING/ PRE-FINISHED CLADDING

Taylor Maxwell Timber Ltd
Tel: 0113 2744655
www.tmtgroup.co.uk

DOORS

STP Joinery Ltd
Tel: 01663 744030
www.stpgroup.co.uk

PINE SKIRTINGS, ARCHITRAVES, DOOR FRAMES

SCA Timber Supply Ltd
Tel: 01782 202122
www.forestproducts.sca.com

OAK SKIRTINGS, ARCHITRAVES, DOOR FRAMES

Timbmet Ltd
Tel: 01865 860300
www.timbmet.com

HOMEBUILDING & RENOVATING

The self-build magazine:
www.homebuilding.co.uk

JOINERY MANUFACTURE

BC Joinery Ltd
Tel: 01242 254343
www.bcgroupltd.co.uk

FINISHES

ICI Dulux
Tel: 01753 550555
www.dulux.co.uk
www.duluxtrade.co.uk/selfbuild

TIMBER PRESERVATIVES

Arch Timber Protection.
Tel: 01977 714116
www.archtp.com

Osmose
Tel: 01628 486644
www.osmose.co.uk

www.woodforgood.com

DID YOU KNOW...

- Wood from well managed forests is the most environmentally-friendly building material
- Each cubic metre of timber used instead of other building materials saves on average 0.8 tonne of CO₂ from contributing to Global Warming (*European Commission Enterprise DG, 2003*)
- Timber is thermally efficient
- Timber is naturally renewable
- Over 90% of wood used in Europe is from European forests (*International Institute for Environment and Development, Using Wood Products to Mitigate Climate Change, 2004*)
- Europe's forests are 'generally stable, well-managed and in surplus production' (*IIED, Using Wood Products to Mitigate Climate Change, 2004*)
- For additional reassurance look for credible third party certification schemes like PEFC or FSC
- Every year the area of Europe's forests increases by 802,000 ha - an area roughly the size of Cyprus (*MCPFE UN ECE FAO, State of Europe's Forests, 2003*)



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