

absolutely pre



fabulous

Experimental design and technological innovation have finally propelled prefabs into the 21st century. Now they offer high-spec glamour as well as instant gratification, says architect Cat Martin.

Imagine stumbling on this house: a timber-clad cube hovering low and lateral in woodland. You step up to a decked courtyard which leads through sliding glazed doors into an expansive, relaxed living area complete with wide oak planks on the floor, comfy L-shaped sofas and a cheery log burner.

Light pours in through floor-to-ceiling windows. The contemporary open-plan kitchen has solid iroko worktops and sleek stainless steel Bosch appliances. Beyond are two double bedrooms with tall, slim windows and a limestone bathroom with teak round the basin and bath.

The Retreat (pictured overleaf) – as it's been named by its architects, Buckley Gray

wood, indeed anywhere outside the curtilage of a village – The Retreat can come to rest anywhere a caravan or mobile home would be allowed. The caveats – and of course there are some – are that if you're going to put it on your own land, its use must be "incidental to the enjoyment of the main dwelling house" (meaning that there has to be a principal house on the site already). Add a prefab on wheels to your home and it could become an office, studio, guesthouse or teenagers' hangout.

But if you want to commune with nature and don't already have a conventional house on a Hebridean island or windswept moor, you're probably going to have to commune with human neighbours as well

blaring radios, red-top newspapers and forgotten mugs of tea – on site for months.

But despite all these pros, prefabricated houses have long suffered from a negative image. Historically, the term has conjured up uninspiring images of anonymous, mass-produced shelters. Indeed, as the second world war came to an end, Winston Churchill promised servicemen returning to bombed-out cities "homes from the factory". Prefabs were an instant and cheap solution to the urgent need for new, low-cost housing. These days, they still are: many of the developments being built to house key workers such as nurses, teachers and bus drivers in Britain's inner cities – as urged on by John Prescott and Ken Livingstone – will be modular and prefabricated. In Japan, Muji is now selling kit houses. All these are low-budget innovations, and it's staggering what can be achieved by the method for the price – as architects from Le Corbusier and Frank Lloyd Wright have long recognised.

But prefab building doesn't have to be low-budget. All "prefab" actually means is "made off-site, trucked or craned in, and bolted together". And it's a fine way to build. The combination of new industrial techniques and experimental design has gradually pushed the potential. In many cases, buildings made off-site in a controlled environment not subject to the whims of the weather can be produced with greater precision than their conventionally built counterparts. The quality can be fantastic.

The past decade has seen numerous prefabricated houses emerge in the US, Australia, New Zealand, Britain, Ireland, Italy, Germany, Austria and Switzerland and the latest examples defy perceptions to such an extent we ought perhaps to rename them "postfab".

There are several ways to take the prefab route. You can either commission an architect in the normal way to design a (bespoke) structure, and then have it built off-site, or you can go to one of the increasing numbers of companies offering off-the-peg models.

Either version can arrive in 2D or 3D: in other words, as a flat-pack requiring complete assembly, or as a set of pre-assembled modules that might already contain kitchen and bathroom and only require bolting together.

The simplicity of assembly makes prefab an excellent choice for sites where access is difficult – for example, a rooftop. Instead of scaffolding the existing building and hauling up the building materials, a prefab rooftop extension can be craned in, the shells hoisted quickly into position. (Crane hire costs about £3,000 per day.) What's more, prefabricated units tend to be lighter than traditional constructions, so add less load.

However, if your prefab roof extension is site-specific, don't expect a bargain. As

Aran Chadwick of Atelier One explains, "It's often cheaper to do it traditionally than do a one-off modular installation. Small prefabs such as the penthouse craned onto the Thompson House in Cheshire [a bedroom and bathroom penthouse craned onto an art deco house in Cheshire, as pictured on opening page] are good if you have a difficult site or issues with neighbours, but not if cost is one of your concerns. If doing a number of units, it becomes more competitive."

Loftcube (pictured below right) is one such rooftop rollout. The brainchild of Studio Aisslinger in Berlin, this futuristic pod on stilts is intended as a minimal home "to suit people of nomadic lifestyle" and has been designed specifically to perch on flat roofs in dense urban areas. The modular structure has a steel frame and fibreglass shell and the interior can be divided by a number of sliding panels. Loftcubes cost from £67,000 and can be shipped in a 40ft standard container and craned into position in a matter of days.

Studio Aisslinger's website shows an animated image of a Loftcube glowing on a rooftop in Berlin – and there the idea is viable. Many of the post-war buildings

"Prefab is very good for meeting regulations. What we got was precision. Speed and quality are the reasons to do it."

have flat roofs, and planning permission is obtainable. In London, however, a Loftcube might be harder to site. It's unlikely one would get the green light in a largely Victorian borough such as Kensington and Chelsea, though its chances would improve in a grittier inner-city area with a range of building stocks, not all of them stuccoed.

Tim Pyne, who designed and launched the prefab M-house ("mouse") – a 1,000sq ft modernist take on the tin shed – in 2002 is another architect with his eye on flat roofs. "In Hackney, for example, they insist that rooftop extensions use different materials," he says. He is also hopeful of finding a market for the M-house on the increasingly populated south coast: "In Hastings, the planners seem to be keener on people building [from scratch] rather than buying up the existing housing stock." And the company has also developed a hurricane-proof M-house with Florida in mind, plus a sand-proof one aimed at Dubai. M-house is now being manufactured in Lithuania with positive results. First, the Lithuanians, as former members of the Soviet Bloc, "have an incredible expertise in prefab". Second, Lithuanian production has lowered the price of a M-house from £135,000 (when it was initially made in Britain) to £98,000.

While Loftcube, M-house and The Retreat are all compact homes or annexes, prefabs do not have to be small. Larger structures can be built by stitching a number of modular units together.

Martin Markcrow Architects has recently designed a penthouse extension to an existing building that will be composed of five modules. With the client already resident on the top floor, minimum disruption is essential. "It's a kit of



Pringle Richards Sharratt were the architects behind this prefab development of four one-bedroom lofts in London.



right before it gets to site," explains John Pringle. "Speed was also important, and it was possible to get the frame up fast," he continues. The road was only closed for two days for installation.

The solid cross-laminated timber Leno panels (by German company Finnforest Merk) form the building's walls, floor and roof. Openings for windows and doors were pre-cut with computer-controlled machinery, which achieved great accuracy and tight joints.

"Prefab is very good for meeting regulations," Pringle explains. "It is not cheaper than the conventional system, but what we got was precision. Speed and quality are the reasons to do it."

An alternative to prefabricated timber panels is timber-framed panels with a galvalume siding material, as used in the LV Kit Home by Rocio Romero. The appeal of this kit home (from about £19,000) is its clean lines, open-plan interior, full-height windows and huge sliding doors. The pre-assembled components can arrive from the US on a single truck in as little as four weeks from the final order. Layouts can be customised to an extent, but completion is a little more complicated than just adding water. Foundations, plumbing, insulation, glazing, and fit-out is required, so the 1,150sq ft-2,800sq ft house must be completed by more traditional methods by a local contractor. With pre-drilled holes only for electrical

wiring, there is scope for him to mess it up on site, but it should be complete within two months of arrival.

A number of other innovative projects are in the pipeline. Pad P4 is a prefab house that can grow. A central core acts as a hallway and stairwell around which rooms are then attached as desired. The Pad team claim the flexibility is such that they could "change a room while you are out at work". A prototype is now in production, and orders will be taken from March. The cost is likely to start at £74,000 and will include foundations.

Another pioneering system, using engineered timber to create unusual prefabricated homes that do not look or feel modular, comes from Youmeheshe. The "small but tall" accommodation is motivated by sustainability, both financial and economic. Architects Simon Dickens and Simon Beames explain they anticipate just two deliveries of material per build. Fast to construct, these houses will take "minutes not months on site, minimising disruption to the local infrastructure". They also have the added benefit of controlled use of materials, so the team anticipates zero construction waste at site.

With the number of collaborations between architects and manufacturers escalating, the range of prefabricated housing is ever expanding. Still, while it is undeniably a great way to build, it may not be for everybody. There are a few drawbacks. All components are pre-ordered so early decision-making is critical, and once a project reaches the detailed design phase major changes can be difficult to make. In addition, kit homes are generally only supplied with items that are cost-effective to manufacture and ship, so expect to source stone finishes etc from a local supplier. Most importantly, the idea of prefabs is still unfamiliar to many statutory authorities, so they can be stickier than they ought to be about granting planning permission. As Aran Chadwick says, "Planning can take longer than the building and delivery."

Half the point of off-the-shelf modular structures is that you can try before you buy and if you want to know more about prefab architecture, make your way to Store Street in London in the next couple of months. The latest exhibition in the New London Architecture gallery space is *Prefabulous London*, and several full-size inhabitable modules will be parked outside. ♦

HERE'S ONE THEY MADE EARLIER

Prefabulous London, Jan 26-Mar 18 at New London Architecture, The Building Centre, 26 Store Street, London WC1 (www.newlondonarchitecture.org). **Atelier One**, 020-7323 3350; www.atelierone.com. **Finnforest Merk**, 0049-8251 9080; www.finnforest.de. **Loftcube**, see Studio Aisslinger. **Martin Markcrow Architects**, 020-7241 1899. **M-house**, 07855-493 932; www.m-house.org. **Pad**, 0845-607 6100, www.padlife.co.uk. **Pringle Richards Sharratt**, 020-7793 2828; www.prsarchitects.com. **The Retreat**, 020-7033 9913; www.retreathomes.co.uk. **Rocio Romero LLC**, 001573-547 9078; www.rociomeromero.com. **Studio Aisslinger**, 0049-3031 505 400; www.aisslinger.de. **Youmeheshe**, www.youmeheshe.com.



Main picture and above: Atelier One created a prefab penthouse that was craned onto the art deco Thompson House, Cheshire.

Yeoman – is an eco-friendly bolthole with a high specification of materials and careful detailing. You'd never guess that this building arrived on the back of a lorry. Nor that it wasn't a bespoke design for its location but rolled off a production line. Yes, it's a prefab.

The Retreat comes in eight variations of size and layout, with up to three bedrooms, and is priced from £25,000-£80,000. You put in your order and in a matter of weeks your abode will be ready for delivery – in parts which are assembled in days. Varying degrees of customisation are possible, but it'll cost you time and money to break the assembly line. Meanwhile, you decide where you'd like to put it and instruct a contractor to pour a simple concrete base.

But what about planning permission? Amazingly, it needn't be a problem. Given certain circumstances, you can park a Retreat on the drive, down the garden, by a river or overlooking a beach. "Park" being the operative word. The Retreat arrives on wheels, and is consequently really a caravan. Yet this spacious and elegant tardis defies all caravan clichés. "People who wouldn't normally consider caravans want one when they see these," says Richard Buckley, one of the architects. "They don't believe it's a caravan so we have to show them the wheels."

In fact, the wheels are crucial. Where you might never in a million years get planning permission to construct a conventional house on an open green site – in the middle of a field or in the heart of a

as the flora and fauna – by installing your Retreat quite close to someone else's in a designated location – in other words a trailer park.

There are 15 nature reserves/holiday villages around Britain – from Devon to Wales to Norfolk to North Yorkshire – as well as locations in France, Spain and Ireland, that welcome these stylish lodges, whose wheels become invisible once the structure is assembled. Retreats can be connected to mains services or be thoroughly sustainable and self-sufficient with photo-voltaic panels for solar power, wells for water and sedum moss roofs. So if you tire of one location, you can simply tow your holiday home to another.

Compared to a "normal" new build, The Retreat offers almost immediate gratification: you could be padding around in one by Easter. What's more, because this "caravan" is made to British Standard BS/EN 3632, it is exempt from Building Regulations, VAT and stamp duty. So a prefab on wheels is an extremely economical way to buy a new slice of living space.

Not all prefabs are cheaper than their conventionally built counterparts but, whatever the financial costs, they usually deliver significant savings in time, hassle and disappointment. If you're ordering an off-the-shelf design, you can inspect a show house and so see exactly what you're getting. And because a prefab arrives almost fully formed, you don't have to have builders – with their skips, Portaloos,