

NANO HOUSE

INNOVATIONS FOR SMALL DWELLINGS

Thames & Hudson

PHYLLIS RICHARDSON



PLUS ONE

ONE+ MINIHOUSE

Add-A-Room

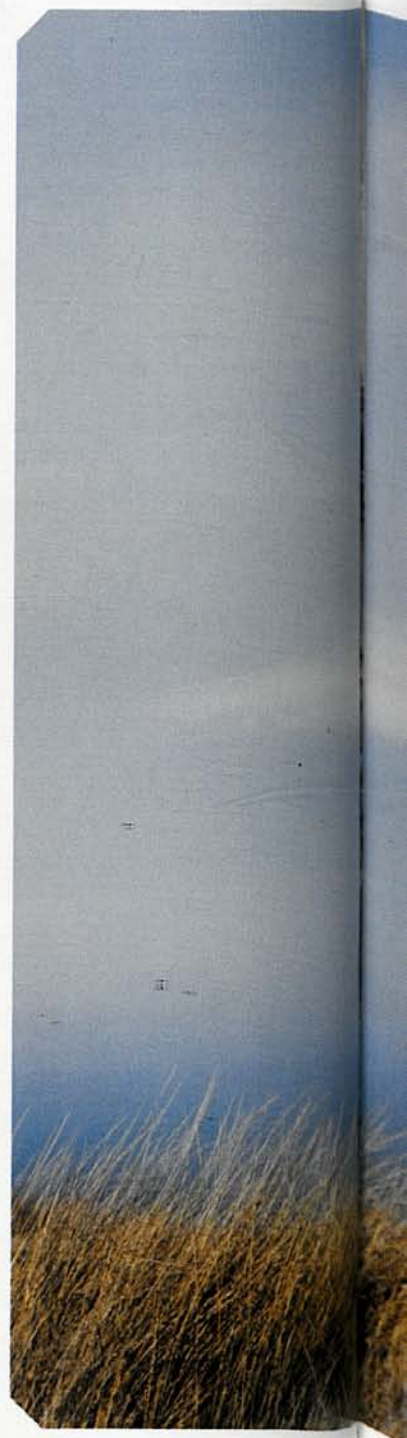
Stockholm, Sweden

15m²+ (161 sq ft+)

The idea of modular building has been around for years, but the concept of reducing it to its lowest footprint with the highest-quality design is something that the team at Add-A-Room have brought some much-needed innovation to. Following on from the traditional Scandinavian summerhouse concept, and thinking in terms they describe as a 'Lego system for adults', the designers created a model that pays homage to tradition, while offering more modern versatility and ecologically conscious design.

With its dark wood cladding and clean-lined natural wood interiors, the One+ Minihouse appears to adhere to a familiar Nordic type, but it makes strides towards even greater efficiency. The smallest unit measures a mere 15m² (161 sq ft), small enough to avoid the need for a building permit in Sweden. Dwellings of this size, called 'friggebod', are a common sight in colonies of summerhouses, though some can be nothing more than huts. The One+ Minihouse contains all the necessary services for a functioning house, including a petite pergola and deck. But the unit is also conceived as a 'linking module', which can be added to as the client wishes, increasing living space or including an outdoor kitchen through the addition of further connecting units. This, too, follows on from the Scandinavian tradition of having a summerhouse that consists of a series of buildings, but by having linking, rather than stand-alone, units the One+ Minihouse maximizes energy and spatial efficiency.

Materials and construction are also geared towards green thinking. The familiar-looking cladding is, in fact, a relatively new product called 'Superwood', made from a plentiful softwood – spruce – that has been treated to result







The cladding is a product that uses a plentiful softwood, impregnated with a substance that makes it more durable, akin to hardwood. The units can be used separately, or attached together to create a larger house. Beneath the cladding, thick insulation maintains thermal performance inside.

in a more robust skin, reducing the demand for imported and endangered species of slow-growing hardwood. The glazing is both ample to provide abundant natural light and high-performance to reduce heat loss, while extremely thick insulation helps ensure a comfortable internal temperature, lowering the need for heating (or cooling). The whole unit is prefabricated, again reducing on-site wastage and lowering labour costs, and the house is delivered to site by truck, and then craned into place. It can also be moved when necessary.

The Add-A-Room system was developed by Svenne Hansson, a working carpenter, and his wife Susanne Aarup, who have spent several years running a family business renovating summerhouses in Sweden. The couple teamed up with Danish architect Lars Frank Nielsen, who has made a career injecting sharp minimal design into traditional Scandinavian housing types, as well as in producing public buildings with a crisp, modern sensibility and an underlying warmth in materials. In this design, Nielsen says, 'we wanted to provide an alternative to the existing mini-houses in Sweden that mostly look like playhouses for children'. Their approach, as cute as it may appear, is a sophisticated effort towards minimal living, with every detail carefully mapped to enhance the environment of the single unit or the multi-module house.

It seems a dilemma of our time, the question of how to enjoy the natural environment even as we become increasingly conscious of the impact we have on it. Since we cannot avoid making demands altogether, the answer seems to be to reduce as much as possible, to hone our needs to the minimum. For those who do not wish to compromise the



comforts of home, the compact offering of the mini-house seems in many ways an ideal solution. More than a system of highly functional modules, the combination of dark exterior and light internal space, and the inclusion of an outdoor deck area and pergola, add a sense of luxury on a satisfyingly small scale. And the design invites the kind of relaxed, flexible living that too often demands more from the land than from our own ingenuity. Here, the team at Add-A-Room are making a step towards reversing that trend.

READY TO LAUNCH

SHELTER NO. 2

Broissin Architects

Tepotzotlán, Mexico

39m² (418 sq ft)

It might resemble a craft that could fly high above the earth, but this modular shelter was actually modelled at a micro-scale, being inspired by the shape of a virus. The house can be used as a stand-alone or as part of a multi-unit housing project. Architect Gerardo Broissin describes his 'Shelter No. 2' as 'an economic, prefabricated, modular dwelling project, designed to be inhabited by two or three people of any socio-economic level'. It is expandable and composed primarily of gypsum products, which are themselves made up of 90 per cent recyclable materials. All and all, it's a small-scale approach to a much larger ambition.

The shape, for all of its geometric distinction, proves very practical for a house on a small scale. A compact, tripartite design allows for more space on the upper floors, while the footprint and roof area (where heat escapes) are kept to a minimum. The wall panels are covered in hexagonal perforations that can all be opened up to allow in natural light, as can the roof panel. This is a key feature of the best micro-designs: letting in enough light and air to make sure that small does not feel cramped, dark or claustrophobic. Broissin's shelter is a magnet for sunlight, which is allowed to penetrate from myriad angles and create layers of light and shadow, not so unlike rays through trees. Inside, the brightness is maintained through the use of white on the walls and for storage, and bold orange furnishings.

Pragmatism is also evident in the sensible arrangement of rooms. While the bottom floor, with its narrow floor space, is restricted to access and the facility for a small, hydroponic garden, the wider middle section accommodates the living room, bath and kitchen with breakfast bar. The top floor

makes a fitting aerie for the bedrooms, with sloping walls and reduced ceiling space, reminiscent of many a cosy attic retreat. Efficiency is built into both the construction and the running of the house. A crew of ten or so workmen can assemble the whole from the prefabricated parts in about two days, and appliances are powered by an arrangement of solar panels attached to the surface. Water needs to come from a mains supply, but once it has been used, it is sent through a biological treatment system (also prefabricated) that cleans the water enough for reuse in irrigation.

In addition to its solar system for electrical power, the house has a full array of green credentials. The walls and floors are made from layered panels that sandwich a non-toxic, sustainable insulation (cork) between the layers of gypsum. Double-glazed window panels are made from recycled glass, the bathroom walls are covered in panels made from recycled resin, the structural steel is taken from disused ships, and the furniture is recycled plastic. For the hydroponic wall on the ground floor, the architect devoted a section of the angled wall space to an irrigation system that would allow for gardening without the need for soil.

Not satisfied with designing a successful prototype, Broissin argues that this is a 'real house', capable of housing two adults and a child. He has also created a model for future development, attaching multiple units, virus-like, to a single structure to form an energy-efficient housing block. Broissin adds that Shelter No. 2 has already become 'a detonator of collective and individual ideas' for those who have been able to experience it, whether visiting 'for ten minutes or spending a night'.

Though its shape
draws associations
with space travel and
science fiction, the
project's aims are
more earthbound:
to provide a model
for sustainable,
economically viable
housing units.





Walls are panels of fibre-reinforced gypsum boards, made from 90 per cent recycled materials. Windows are recycled double-glazed, high-performance tinted glass, with an air chamber between the layers that improves thermal values. Floors are covered in bamboo panels.





LIFE IN THE ROUND

ROLL-IT

Institut für Entwerfen und Bautechnik

University of Karlsruhe, Germany

2.5 x 3m (6 ft 6 in x 10 ft)

This tubular living space is proof that there is a lot of room for rethinking the standard housing model, especially if we want to scale back our demands. When asked to design a living space that could be moved and set up overnight, then moved on again 'before one has started to annoy the authorities', the creators of the 'Roll-It' took the idea of mobility seriously. But they considered the concept not just in terms of conveyance from one site to another. Mobility is also a key feature of the interior, which, in order to provide all of the basic amenities within a tiny, curved space, is also movable, changeable, flexible.

'Imagine', say the creators of this rolling house, 'that you have to move to another place due to work or study. Instead of looking for a place to live, you bring your own home with you. You could choose a parking space or a nice park to live in. You don't have to ask for permission or a permit.' Well, not until someone wants you to move, which, of course, you can do, with the help of a few strong friends or a flatbed truck. This was the solution presented in a design competition at the University of Karlsruhe by Christian Zwick and Konstantin Jerabek. Roll-It is a highly mobile and totally unconventional design that takes flexibility as a concept from the outside in.

Starting with the structure of a barrel that is 2.5m (6 ft 6 in) in circumference and 3m (10 ft) long, they integrated living, working, sleeping, cooking, bathing and toilet services into the circular interior, and faced them all with friendly, light-grained bent ply. While the designers do not mention any particular inspiration from spacecraft, the highly flexible and non-linear interior recalls the compartmentalized,

spatially inventive living conditions of an anti-gravity interior. Here on earth, however, amenities need to be brought to user level, and some degree of horizontality. So the barrel consists of three service 'rings': at one end is a sleeping/living unit; at the other is the kitchen/washing/toilet hub. In between is the 'corridor', a ring that turns by aid of walking up its slope. Analogies to the hamster wheel are not entirely without reason, since Roll-It was designed to be used for occasional exercise. The ring's more utilitarian function is to help 'dial' the service required for the two end units. The user connects the corridor to one of the two 'furniture shells' on either side, and then walks along until the connected shell is in the desired position. He or she then locks that shell into place until it is necessary to change it again. Dialling the middle corridor also changes the amount of natural light coming into the interior, as windows line up with external openings on the outer layer – or not. It's a lot of flexibility for such a small shell, and a lot of mobility.

The title of the workshop for this project, run by professors Camille Hoffmann and Matthias Michel, was 'Guerilla Housing', an intentionally provocative rubric meant to eschew ideas of conventional shelter. Sadly, it is also a term that highlights the difficulties in creating housing types that defy traditional models, even when they do so in the interest of saving resources and valuable urban space. What the Roll-it really accomplishes, like the best of small-house designs, is a successful enquiry into what is necessary for a comfortable, healthy living space. It also provides a tantalizing glimpse of where such investigations, carried out in earnest and with the fewest preconceptions, might lead.



'Even Diogenes, the first to see himself as both a citizen of the world and the inhabitant of a barrel, would have been amazed at the interior of this particular barrel.'



Services are all fitted within the internal structure. The inhabitant can change access to bed, desk, kitchen or toilet by walking along the centre ring, which can then be locked into place. The structure was made from a specially fabricated plywood.





FILLING IN THE GAPS

BUBBLE HOUSE

MMASA Arquitectos

A Coruña, Spain

4m² (43 sq ft)

It has come to the attention of some of the more experimental architects that the space needed to accommodate a growing, often transient, urban population is to be found between, around, even on top of, the existing infrastructure. Studio Aisslinger's Loftcube, designed to sit atop a building, Stefan Eberstadt's Rucksack House, which can be hung off the façade, and Richard Horden's MicroCompact home, made to fit happily anywhere extra accommodation might be needed, all speak to the desire to provide self-contained shelter without making permanent demands on the site. Since most cities are already brimming with large, monolithic buildings that crowd out natural light and open space, what is the point of adding even more steel and glass, bricks and mortar? This is precisely the question that Luciano Alfaya and Patricia Muñoz of MMASA address with their BuBbLe construction. 'The core argument', they say, 'is the appropriateness of creating temporary residential spaces in contemporary cities, thus learning the value of ephemeral, dynamic and flexible elements.'

So where many might see a plastic tent, Alfaya and Muñoz see a potential to shelter people in the areas they call 'the cracks of programmed elements', or 'urban voids'. Their point is that even within those programmed areas, there is still room for flexibility, and that even underused private spaces might be exploited in this way. Their solution is this transportable, easy-to-assemble, low-cost kit shelter, which addresses 'four basic problems that have not been solved by conventional temporary structures: to be uniform in height along the entire surface; to have a cover that provides insulation and comfort and can be adapted to



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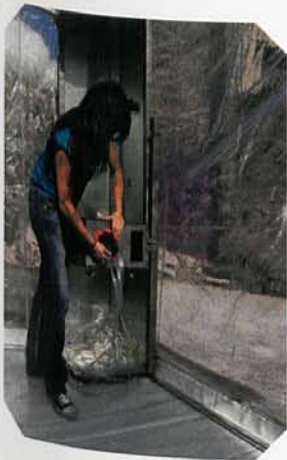


specific circumstances; to have a solid structure that ensures rigidity; and to provide basic hygienic services.'

The entire 'building' fits into a metal carrying box that becomes a block of services for the house, containing a sink and a cooker. A series of metal poles are fitted together to form the structural frame, then a single piece of double-layered plastic is stretched across it to form the walls and roof. Another piece of plastic covers the floor, and there is an inflatable bed. A solar panel supplies energy for lighting and light electrical devices. So far, so tent-like. The real innovation is in the double-layered membrane that is sealed at intervals to form a series of different-sized pockets, or 'bubbles', which can be used as storage, for clothing or other soft articles that then act as insulation for the shelter. A picturesque rendering shows the bubbles filled with

leaves, providing privacy and a salubrious green backdrop. The bubbles can also be used to store water for use by the occupants, which, the architects surmise, could be obtained from a public fountain. Making the plastic envelope from a single sheet helps with ease of installation and contributes to the thermal condition inside. An external shower and chemical toilet can be added for longer stays.

The bare-bones lifestyle required to live in such a sparse shelter is not for everyone, and there is a certain student-style radicalism in this approach, but the underlying premise cannot be easily sidelined. Especially with so many cities struggling to produce adequate housing for their financially challenged numbers, the time to test our flexibility with regard to the concept of shelter in urban spaces might be at hand.



The walls and roof are made from a single sheet of double-walled plastic, with sealed sections that can be filled with clothing or other items for storage (and insulation), as well as water for domestic use.



OFF-GRID IN THE OUTBACK

BATH HOUSE

Craig Chatman, ARKit
Collingwood, Victoria, Australia
Less than 50m² (538 sq ft)

As popular as prefabricated buildings have become in the last decade or so, there is still a lot of room for innovation, as Craig Chatman demonstrates with his elegant 'Bath House', so-called for the inclusion of a sauna in one of its two pavilions. It is, Chatman says, 'a great experience on a cold night after finishing a sauna to dash across the deck, knowing another warm room awaits you'. This, in a nutshell, is the wonder of a place that extends beyond its energy-efficient, cost-effective construction. There is a sauna, there is a deck, there is another warm living space – all contained in a footprint of less than 50m² (538 sq ft). The two near-cubic structures, clad in Western red cedar, appear to mirror one another across a wood-lined outdoor space. Call them boxes if you must, but these are high-performance boxes, full of comfort and trim-line design, the cladding softened by being layered in columns that, from a distance, have the delicate quality of a far less sturdy material.

It's a seemingly simple recipe, but one that took the architect five years of research to produce. After setting up his own firm, following his studies at the Royal Melbourne Institute of Technology, Chatman became interested in the idea of prefabrication. It was a means of diversifying his practice, but he was also interested for reasons that have brought so many architects around to prefab design in the last decade: the aspects of affordability, the achievements possible in sustainability, and the involvement an architect has in the manufacturing process. It was the production of the panel system, which Chatman eventually decided to use, that took so much time in development. 'During my initial research,' he explains, 'I was surprised that nobody

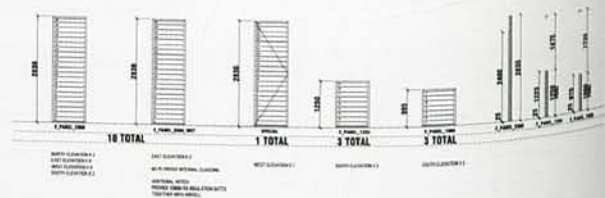






The function of the deck is 'to take advantage of the distant views, particularly the Grampians National Park, and to function as an observation deck from which to view the local wildlife'.

Wall panels are made from Western red cedar cladding on insulated, timber-framed panels. Internal wall lining is premium-grade ply.

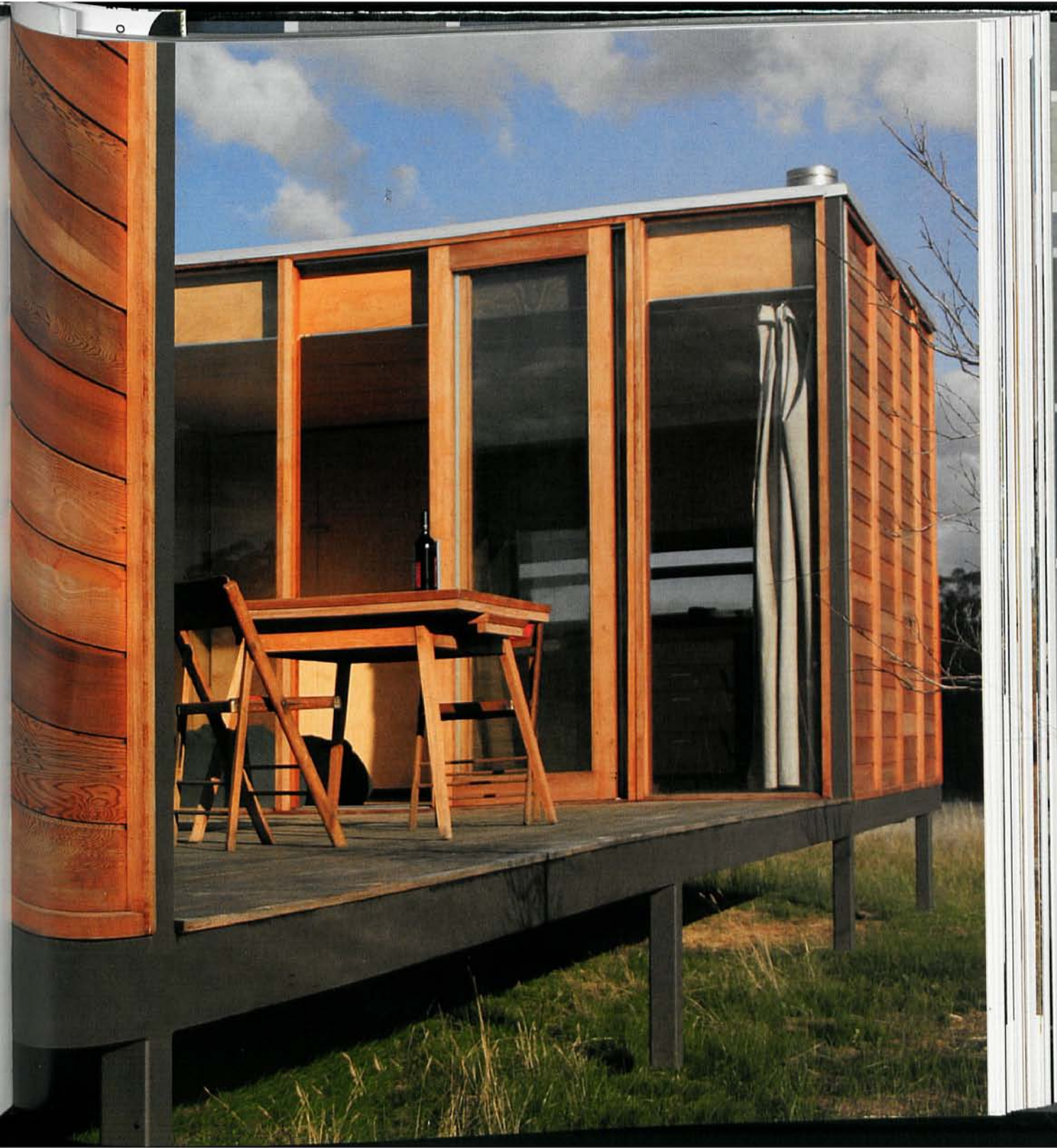


PANEL SCHEDULE

(in Australia, at least) was involved in a panellized approach to the design of a complete façade/cladding system.¹ By keeping the production in one factory under the supervision of the architect, the panels could be produced much more efficiently, especially when they adhered to industry-standard sizes. Waste is minimized, design remains integral, and costs come down.

With the panel production model in place, Chatman went to work on energy-efficiency. The panels created a high-performance envelope for the house, but his thinking went further, making the houses adaptable while still retaining their environmentally sound qualities. Combining solar energy with methods using biomass and wood, rainwater collection and grey-water recycling, the architect created what he calls a 'pick-and-mix' array of options for energy use/generation. The house can be used with standard connections to public services and energy, or it can operate fully off-grid for use in isolated environments. And there are a range of possibilities in between, using some elements of each in combination.

The designs are adaptable as well. In this dwelling, the two shelters set across the deck take the familiar trope of 'indoor-outdoor living', and almost turn it on its head. In response to traditional building types, Chatman says, he 'deliberately stripped away the vernacular verandah, which typified the local residential building'. Instead, his aim was 'to lightly balance the building on the landscape', a feeling that comes through as it is viewed across the horizon. That experience is only bettered by being welcomed inside, or onto the deck with the whole outdoors to wonder at.



LIFTING THE LID

PACO 3M3

Jo Nagasaka and Schemata Architecture Office

Tokyo, Japan

3m³ (106 ft³)

This is a project that ticks a lot of boxes with regard to small buildings: it's micro, it's portable, it's buildable and it reduces energy use by reducing space, which shrinks demand. The white cube has been done before, many times, but not in a model that is quite so bursting with solutions as this. Jo Nagasaka and the Schemata Architecture Office have created a little box of surprises, not only in the fact that it holds so many features cleverly hidden in its floor and attachable to its interior, but also in that it is designed to be partly customized to order. Here, the white cube becomes almost a blank slate, a starting point, like the best in small designs, to allow creativity, enhancement and the personalized details that make a home.

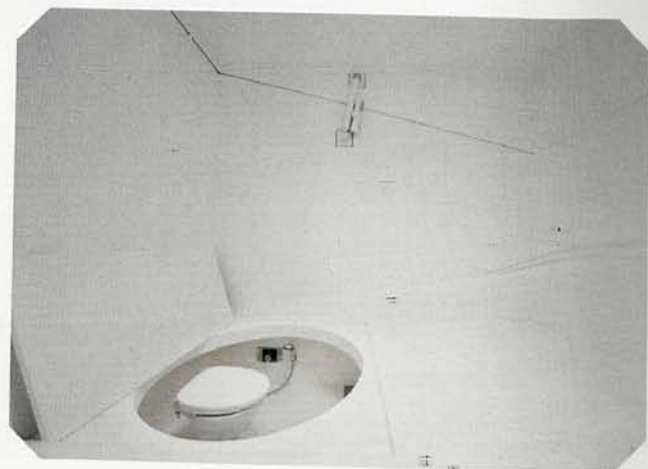
With its pure-white interior, the Paco 3M3 house doesn't at first appear as welcoming as it soon becomes. But then the roof raises a little to let in more light and air. The glazed roof window tilts to an angle, redefining the shape of the interior. The only furniture is a free-standing sink unit, but then a compartment in the floor reveals a little pop-up table. Another underfloor space holds a shower area; the curtain, also white, hanging like an inverted umbrella, is then stowed by its curved handle on a handy wall hook. A further floor compartment contains the toilet. A hammock can be suspended from the roof, which, when the lid is open, allows for a relaxed perch with a view to the outdoors. A further sleeping cubby is tucked into the base of the unit, accessed from a low door outside. It's all pretty cosy, but ultimately functional. Paco 3M3 presents the well-planned interior like a gift, ready to be unpacked.

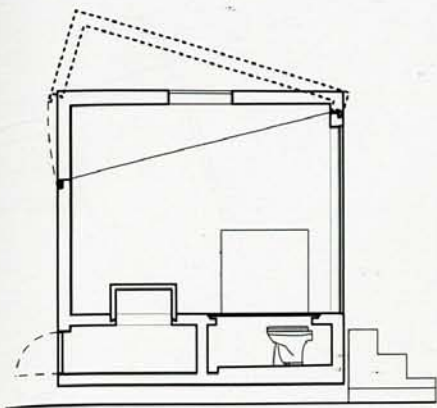
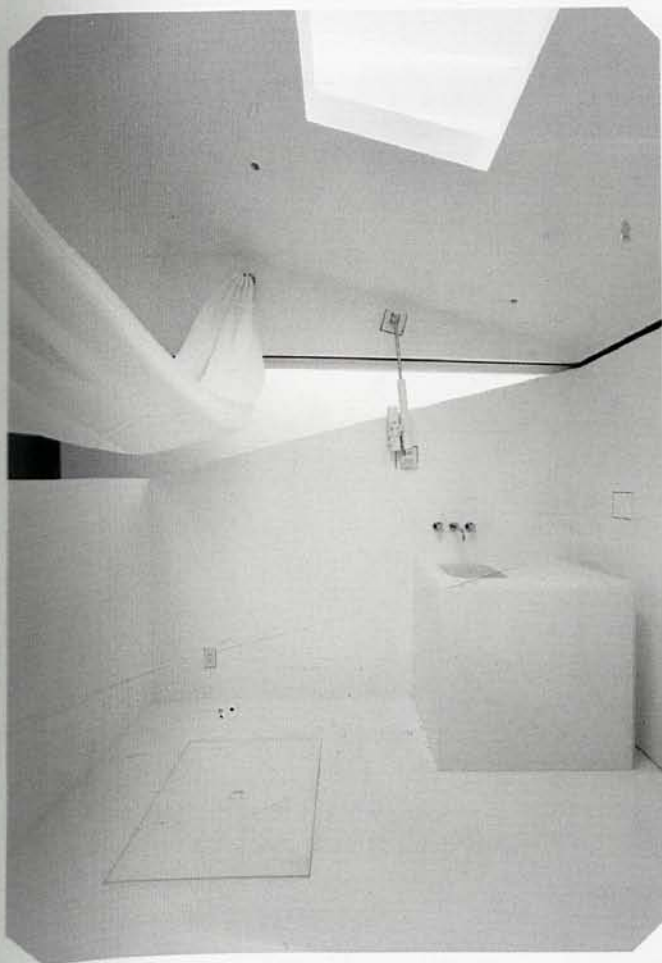
'I wanted to make something that was between architecture and a product, something people might buy on impulse.'

Schemata is a relatively young practice, but one with a fair number of projects to its credit, including numerous interiors. In a range of schemes, from cafés to galleries, private apartments to church interiors, they demonstrate a feel for materials, not just a stripping away to the minimum. Yet while there is a classic minimalist aspect, as evident in the Paco model, there is also a feel for and appreciation of materials: concrete, rough and polished; wood, natural and stained; and the transformative quality of glass.

The Paco 3M3 is designed to be independent, totally transportable. It is, the architects say, 'about imagining a whole new lifestyle'. And while the vision might be a bit extreme for many people, the project gives new meaning to the term 'pared down', at least in architectural terms. The architects see it being used in a variety of settings, as they describe them: 'house+Paco', 'factory+Paco', 'sea+Paco'. So the concept is to take the house with you, but also to have few requirements for energy and services once you get to your required destination. The idea has great potential, both in terms of reducing the footprint of single dwellings and for influencing an awareness of not just of living beyond our means, but beyond our needs.







The Paco 3M3 unit is an expandable cube. The roof lifts to let in light and add dimension to the space. Toilet, shower and desk/table are located in the floor, and accessed through removable panels. A sleeping area is also tucked under the floor space.



IN THE BOX

BOXHOME

Rintala Eggertsson Architects

Oslo, Norway

19m² (205 sq ft)

Finnish architect Sami Rintala is passionate about conscientious, sustainable building. He made a name for himself in 1999 with his 'Land(e)scape' project, which involved putting three abandoned barns on 10m- (33 ft-) high legs and moving them into the city, drawing attention to the loss of small, independent farms. He then created the 'Sixty-Minute Man' for the 2000 Venice Biennale, a ship filled with a garden planted on sixty minutes' worth of human waste. As a teacher, Rintala is involved with TYIN Tegnestue (p. 198), a group whose aim is to carry out design-build schemes to produce very basic shelter or services in areas of conflict, natural disaster or poverty across the globe.

As part of the architecture firm of Rintala Eggertsson, Rintala continues to produce structures that are refined and efficient, striking a note of elemental grace with purity of materials and simplicity of form. In his view, a small house makes sense. It should satisfy basic needs, and demand only the minimum of resources. So he created the Boxhome, a pure, rectilinear volume that provides the space for basic functions set within beautifully warm, wood-lined interiors. With this project, Rintala wanted to counter the growing demand for larger and larger houses, all of which, in Scandinavia at least, must be heated for more than half the year, and to challenge the idea that growing prosperity means a further demand for second homes. Rintala proposes a step back to a more energy-conscious, less extravagant lifestyle, one in which the resources themselves are a form of luxury.

The Boxhome, he says, 'focuses on the quality of space, material and natural light, and tries to reduce unnecessary

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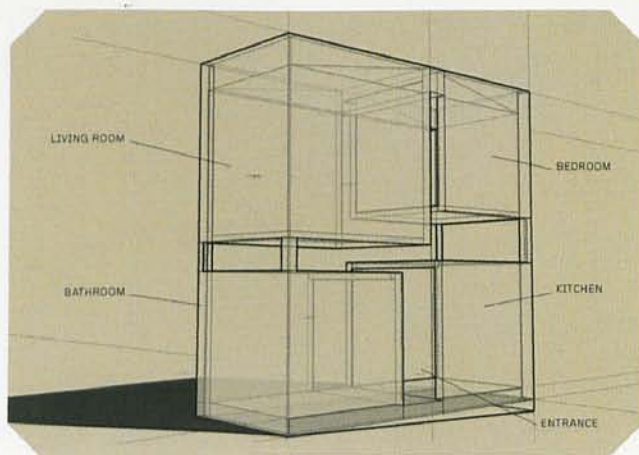
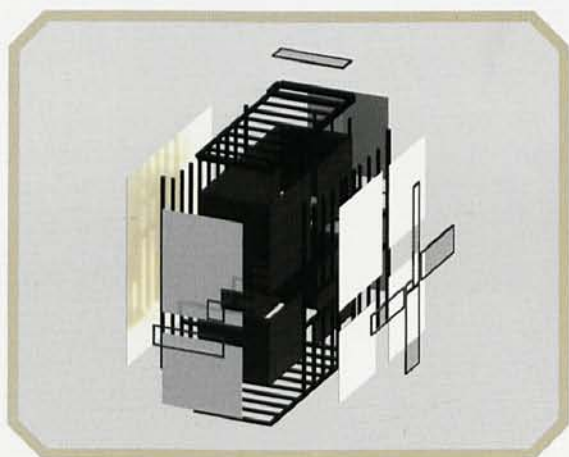
area'. As a result, the dwelling costs only about a
er of what a similarly sized flat would in the Oslo town
e. Even though this structure represents the bare
um in space, it is not meant to be prescriptive. Rintala
aced the Boxhome as a prototype, with the idea that
les could be enlarged or added to create rooms
family, or to serve as a model for a workplace.

As the architect argues, making a simple house is not
cult task, nor one that needs to be left to developers
arket forces. But though it bespeaks a very satisfying
city, the Boxhome is more sophisticated than a simple
er. It has a balloon frame in standard pine, but other
aterials are thoughtfully chosen: cypress for the interior
and floors, birch for the kitchen, spruce in the
room, red oak in the living room and nutwood for the
om. Aluminium panels on the façade shift around
ontal and vertical window panels, breaking up the
appearance into something more dynamic and filling
terior with changing light and shadow. Services are
on the ground floor, up a vertical ladder is a living-room
rm, and slightly above it is a sleeping platform with a
nt that brings light down to the lower rooms.

Rintala maintains that in Western societies we are
ntly enjoying the highest standard of living ever
n to humankind, while also being fully aware of the
quences of consumerism. So it is easy to understand
mpact on the environment and to minimize it, and it is an
tion. But with the Boxhome, that duty seems somehow
nerous and more beautiful than it sounds.

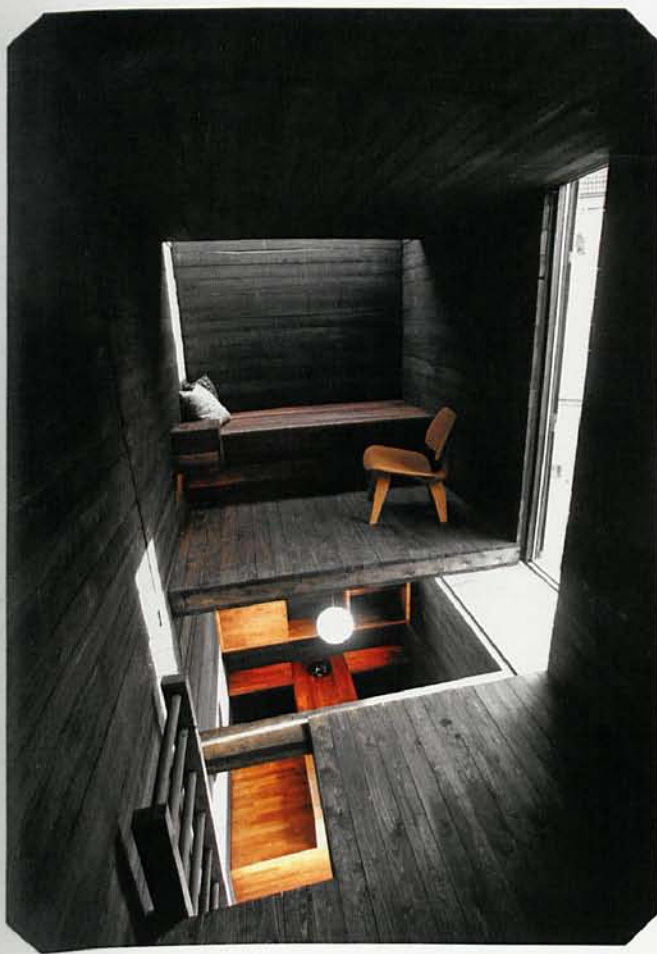


'The goal has been to make a peaceful small home, a kind of urban cave, to which a person can withdraw and, whenever wished, forget the intensity of the surrounding city for awhile.'

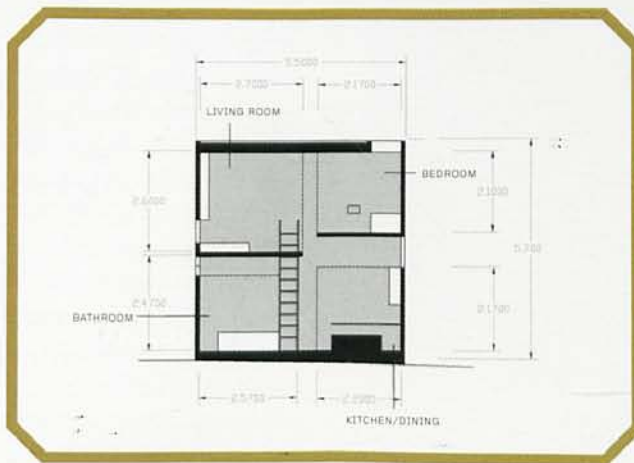


The aluminium is a kind of 'city jacket', says Rintala, while the interior is more universal.





Wood used in the four rooms of the house includes 'thermo-treated' birch in the kitchen, oak for the shelves and platforms in the living room, and spruce, traditionally used in Finnish saunas, for the bathroom. The house was transported in two container-sized pieces and then assembled on site.



TUBULAR THINKING

HOUSE ARC

Joseph Bellomo Architects

Hawaii, USA

70m² (753 sq ft)

It all started with bicycles. Several years ago, the green-minded, California-based architect Joseph Bellomo teamed up with cycling enthusiast Jeff Selzer to create a lightweight, easily installed, compact bicycle-storage unit that could be deployed in parking lots, around parks and in city centres. The resulting Bike Arc was a curved structure made of tubular steel ribs and covered with semi-opaque polycarbonate. The design was later cleverly modified for different climates and environments. Sticking to the basic idea of a curved-rib structure covered in weatherproof material, Bellomo and his design leader, Taraneh Naddafi, transferred the model to the problem of housing, and came up with the House Arc: a prefabricated design that could be used in single units (and deployed as emergency shelter), or combined to form a multi-unit dwelling. The first unit, not a complete house but a single-room addition for an existing building, was erected on the island of Hawaii in 2010.

True to Bellomo's green reputation, the House Arc is designed to function off-grid, and would be 'ideally fabricated locally' wherever it was set up. So its design is remarkably flexible. Rather than being a 'typical modular house with prefabricated panels', Bellomo explains, 'the House Arc is constructed with a kit of parts – individual pieces such as steel ribs, polycarbonate wall panels and cedar wood'. But the choice of cladding material can vary, 'depending on local resources and climate'. The curvilinear frame was carried over from the Bike Arc, not just to adhere to branding, but because the curved structure allows for the addition of such amenities as beds, desks or countertops, while keeping the physical footprint smaller and lighter.

House Arc
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al that requires
pecial training.'



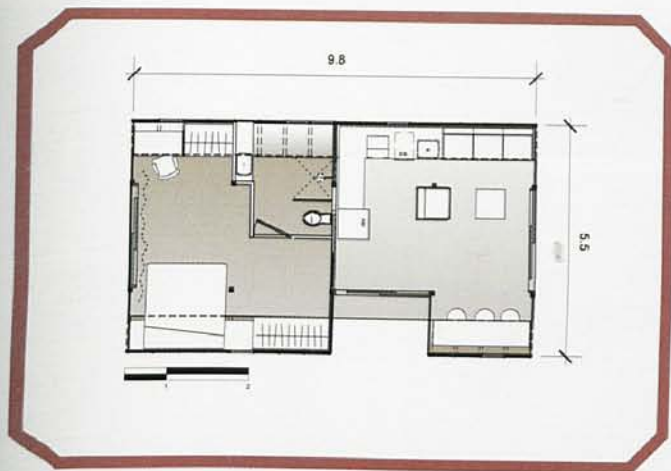


The built house also works towards energy efficiency. Ventilation and cooling are promoted by way of air flow beneath the raised trellis that hovers above the roof, and under the floor, which sits on concrete piers that are set into the grade or dowelled into the bedrock. Bellomo is currently working with a supplier to provide polycarbonate that is embedded with solar film, a new material that can both function as translucent cladding and generate power at all times of day and in conditions of variable sunshine.

Bellomo likens the construction method to that of flat-pack furniture, meaning it can be cheaply and easily transported and put together on site. The kit-of-parts approach also means a very quick assembly time, which

further reduces energy costs. A basic house could be installed by three or four people in as many days. Keeping the structure raised off the ground reduces the permanent impact and allows it to be taken down more easily and transported to another site when necessary.

Though the first built model was not a fully functioning house, 'the future goal of the House Arc', Bellomo says, is to 'rehouse people after catastrophic events and replace housing that was not built to withstand such forces'. It is all a bit more sophisticated than flat-pack furniture or bicycle racks, but by attempting to bring the materials and methods of building to the unskilled user, it goes a long way towards making the distribution of high-quality shelter more humane.



The main ribs are a modular structure of steel tubes. The cladding materials can vary, depending on the local resources and climate. Examples include local woods such as cedar siding, recycled metal panels over a waterproof membrane, and a plywood substrate.

The House Arc can be composed of two modules, one with kitchen and living services, the other with sleeping quarters. These can be joined by a deck to form a breezeway between them.



TAKING FLIGHT

SOE KER TIE HOUSES

TYIN Tegnestue

Noh Bo, Tak, Thailand

6m² (65 sq ft)

There is no doubt that designing for extreme circumstances or times of emergency is a noble endeavour. High-flying notions of beauty, perfection, even efficiency, must be sidelined for the sake of necessity, urgency and humanity. While a number of architects have in recent years come up with some wonderfully innovative designs to address these desperate situations, few of these designs have made it to their actual target in realized form.

TYIN Tegnestue is a non-profit humanitarian group of architecture students based in Trondheim, Norway. In 2008 they became involved with a project to help with the influx of refugees from Burma to emergency settlements on the Thai-Burmese border. A fellow Norwegian, Ole Jørgen Edna, had set up an orphanage in a small village in the Tak province to help with the rising numbers of mainly ethnic Karen people fleeing the conflict. Having taken on twenty-four orphans two years earlier, Edna was now struggling to make room for around fifty. The orphanage needed more and better shelter, but the team thought well beyond the basic physical requirements of architecture. They wanted to 'somehow recreate what these children would have experienced in a more normal situation', and to ensure that each child had their 'own private space, a home to live in, and a neighbourhood where they could interact and play'.

The solution was to create a group of dormitory buildings, which could offer sleeping accommodation that was sturdy, weatherproof and safe, and was also built and arrayed in a way that suggested a life of normality and community. Six simple-seeming diminutive 'houses' are arranged to encourage activities around and through



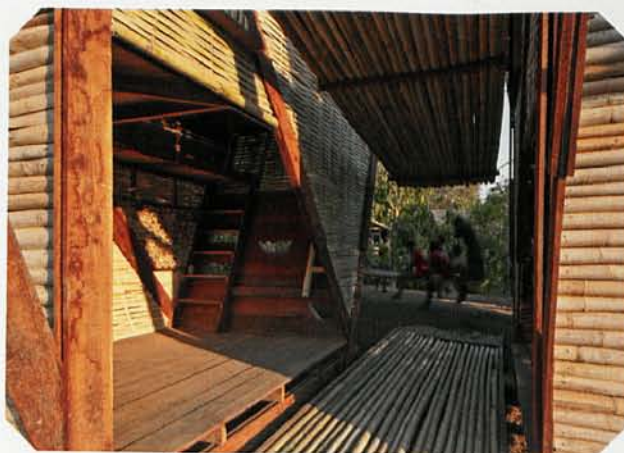
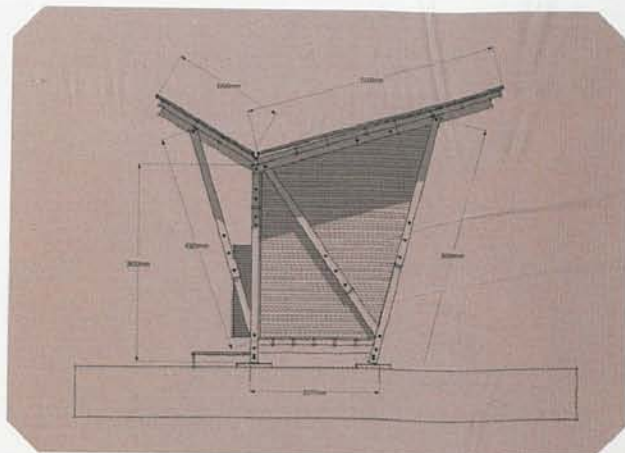


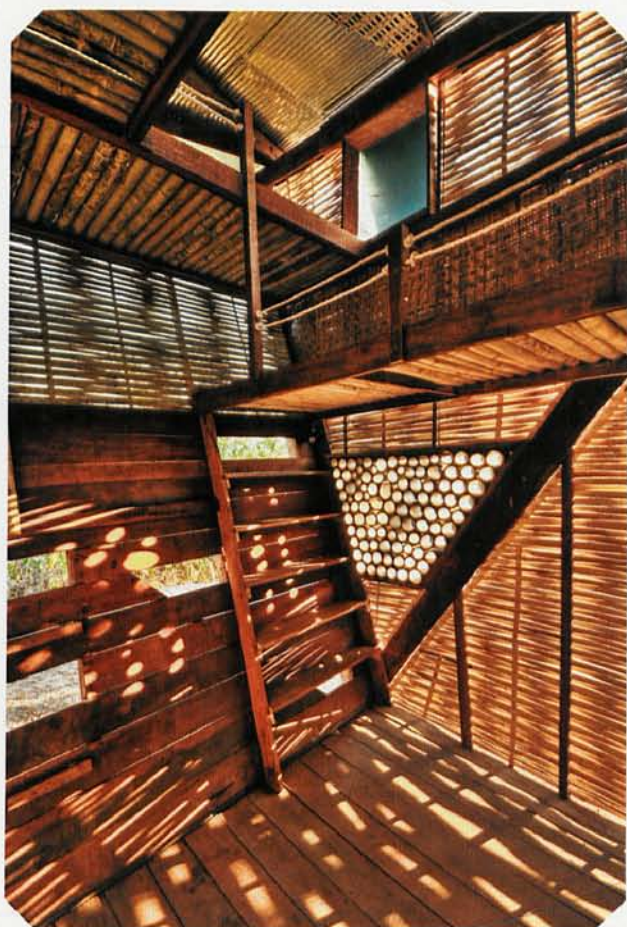
The houses were set on concrete legs, cast into old car tyres. Two houses are joined by an open breezeway. The houses were placed at different angles and distances to encourage group interaction and form varying spaces for outdoor activities.

the spaces. The units do not have running water or cooking facilities, but still manage to suggest 'life', rather than bare-bones 'shelter'. Packed into the 450cm- (177 in-) height structures are two levels of sleeping lofts, as well as floor space at ground level for sitting, 'doing homework' or just messing about.

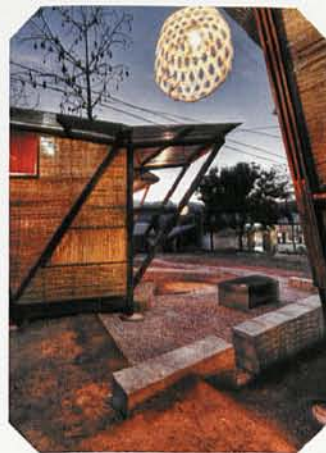
The methodology was simple and effective, but at the same time wonderfully ingenious. Steeply angled roofs increase ventilation and allow for the collection of rainwater. Framing was done in ironwood, with sections prefabricated and assembled on site. To prevent problems with moisture and damp, the houses were raised off the ground, and sat on concrete foundations. A virtue was made of the most plentiful local material – bamboo appears in slender poles that form front wall panels, as strips woven in the traditional style for side and back panels, and in chunky segments set into screens. In addition to these very practical elements, this mini-neighbourhood, with its tidy paths, coloured window shutters and gabled roofs, presents a rather joyful oasis in the shadow of so much that is tragic.

The obtuse V-shape inspired the workmen to dub the structures 'Soe Ker Tie', or 'butterfly', houses, but the name denotes more than a similarity of form. The team's aims are forward-looking, as expressed in their mission statement: 'By introducing basic but crucial principles like bracing, moisture prevention and material economization, our projects work as examples to be used by locals in the future.' They also bring in local people to participate in the designing and building process. These are all noble ideas that have, in this instance at least, actually taken wing.





The design features a ground-floor space with two overlapping tiers of sleeping lofts above. When the number of residents grows, the floor space is also used for sleeping. Varied window openings and painted plywood shutters give the houses a playful appeal. Simple outdoor furnishings include a bamboo swing and a chessboard made from a segment of broken water tank.



Neue
WINZIG
kleine Häuser

Mimi Zeiger

DVA