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Houses That Can Save the World

Courtenay Smith, Sean Topham

An inspirational sourcebook of innovative and unexpected green design solutions for our homes that address the environmental and social issues facing our world today.

400 illustrations

24 x 21cm

256pp

ISBN 9780500343715

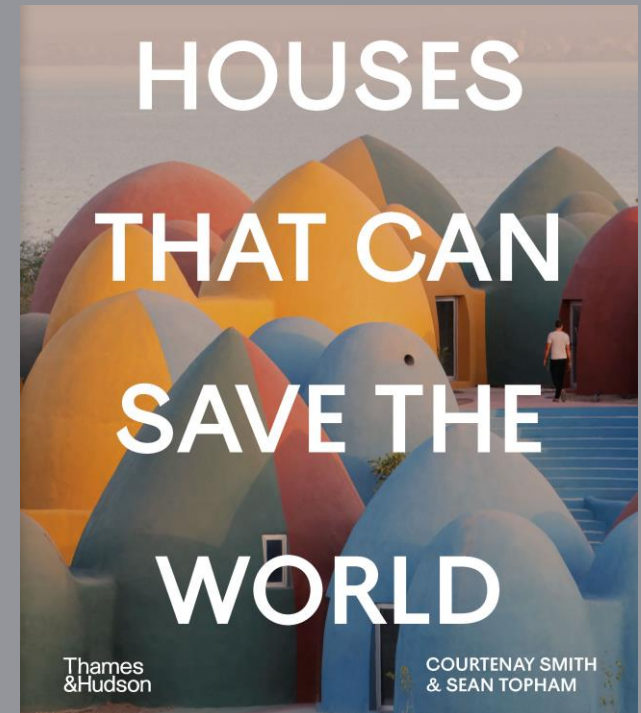
BIC Houses, apartments, flats, etc

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£25

September 2022

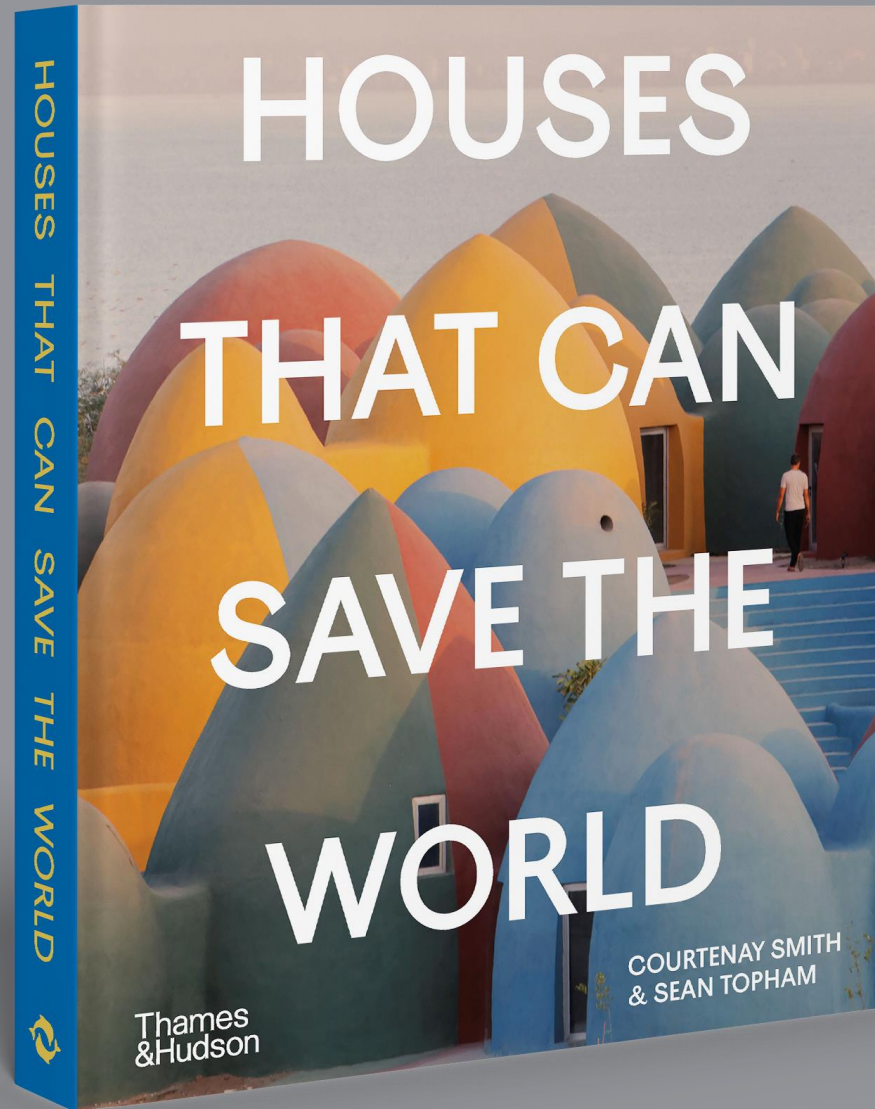
Provisional



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Book

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COURTENAY SMITH
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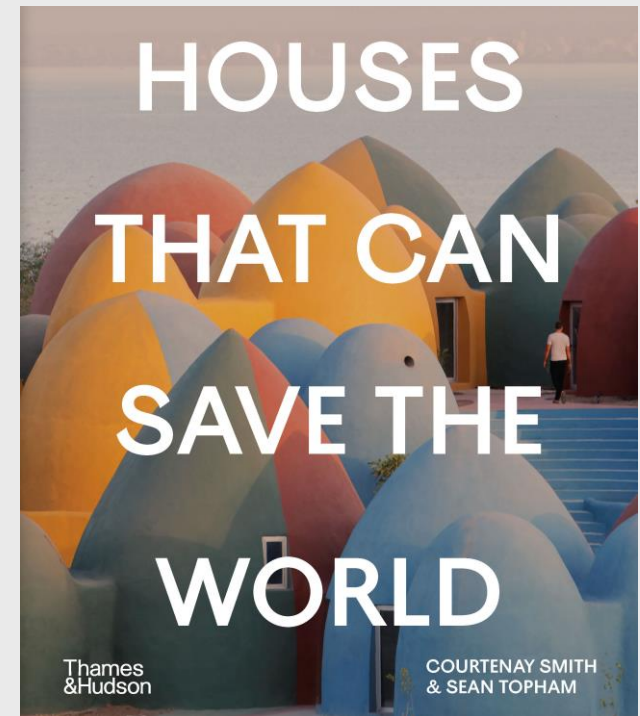




Key Sales Points

- An approachable 'manifesto' and call to action that offers over twenty design strategies for real change.
- For people who want to play their part in generating broader environmental and social changes, the book explains how best to tackle the key design challenges on the personal scale.
- Each strategy features carefully selected projects that put ideas into practice, offering real-world solutions regardless of location or size.

Provisional





HOUSES THAT CAN SAVE THE WORLD

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Design that can be transferred to different terrains, climates and contexts as needed, from disaster shelters to functional small spaces and flat-pack homes

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Re-imagining energy as a resource to be borrowed and returned to shift longstanding paradigms

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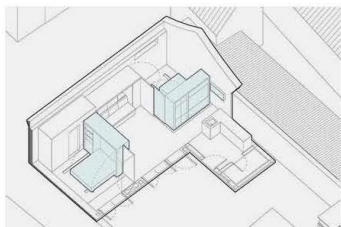
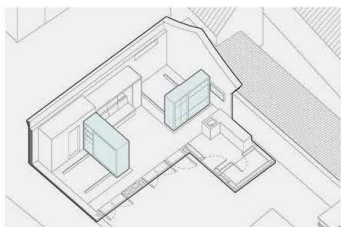
Moving modules

Dot Architects
Baitsi House of the Future, 2017
Beijing, China

Commissioned by a technology company, this small demonstration home is located in a *hutong*, a historic lane or alley lined with traditional courtyard compounds of single-storey dwellings. The neighbourhood is dense and busy, so any construction had to be kept to a minimum. The original site contained a 30 m² (323 sq ft) house and an 80 m² (861 sq ft) yard,

filled with various outbuildings. The architects' strategy comprised three words: home, *flexible* and future. The goal was to create a house suited to the lifestyles of a younger, more mobile generation.

The design team – Duo Ning, Sun Qingfeng and Mao Yanyan – adapted the old to accommodate the new by keeping the original wooden structures, but replacing the decayed roof and removing all interior wall partitions. These were replaced by two movable furniture modules and one static unit. The mobile modules



are controlled by a smart TV, which also regulates the lights, security system and other appliances. Four different layouts are possible, so that the house can shift from three bedrooms to a small office, or a completely open living space. A fixed kitchen and toilet were added to the back of the building using the open-source platform WikiHouse.

The designers define the role of the modern architect as sitting somewhere between forecaster, coordinator, constructor and systems builder. With this project,

they also learned to adapt to a variety of roles, ranging from architect to product researcher to interior and user-interface designer.



Enorme Studio • EEEStudio
All I Own House, 2014
Madrid, Spain

A shift in perspective can be as easy and direct as knocking down walls and moving doors. For this single-storey home in a small community in Madrid, that is exactly what the collaborative team of Enorme Studio and EEEStudio did, creating a transitional "serven space" comprising three mobile wooden containers that move back and forth according to whim or need. The team focused

their attention on the client and her belongings, rather than designing the usual layout. This subtle shift in visualizing a habitable space opened up new possibilities. As the designers note: "There is a close relationship between the way we arrange our homes, the events that take place within them, and the way in which these experiences affect us."

Their intervention travels with the client throughout the day, as she folds up her bed, pushes her books and clothes towards the kitchen wall to make way for a shower, and

then back again to make room for meeting a client. Approaching the design in this way results in a home that reflects the personality and routine of its owner, and can itself be adapted as priorities and possessions change.

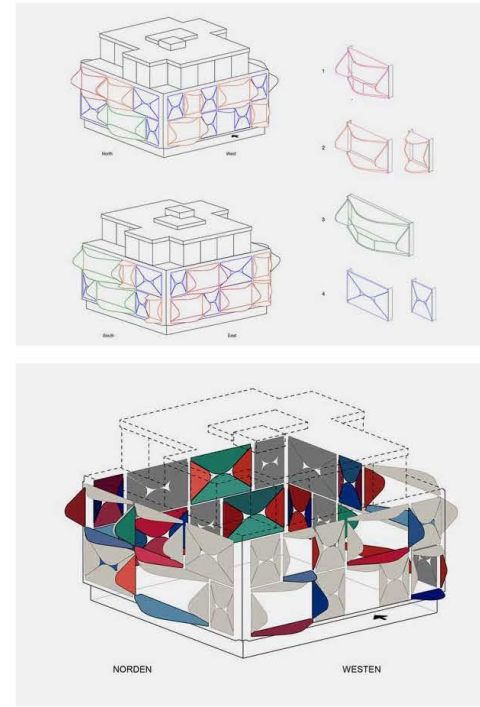


Water works

Manuel Herz Architects
Ballat Mécannique, 2017
Zurich, Switzerland

Although the clear geometric form of this apartment building references the square footprints of the neighbouring 19th-century villas, that's where the similarity ends. Manuel Herz's design features an adaptable façade, which opens and closes, thanks to a hydraulic system. This simple gesture provides residents with additional space and connection to the outdoors, and

moves in sync with their rhythms throughout the day. There are four types of louvres, according to location and the function of the connecting room. One opens to become a balcony with a railing and roof, while a second opens and closes, but has no railing and is used primarily as a sunshade. A third is a permanently accessible, immovable balcony. The fourth remains closed and static. When closed, the building has a uniform metallic finish. When open, it displays a colourful and shifting pattern of blue and red.



Local materials

Taller Haaton Barroso
Entrepinos Housing, 2016–17
Valle de Bravo, Mexico

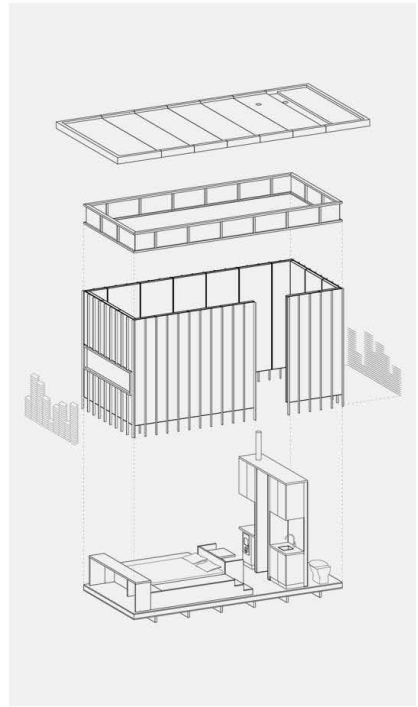
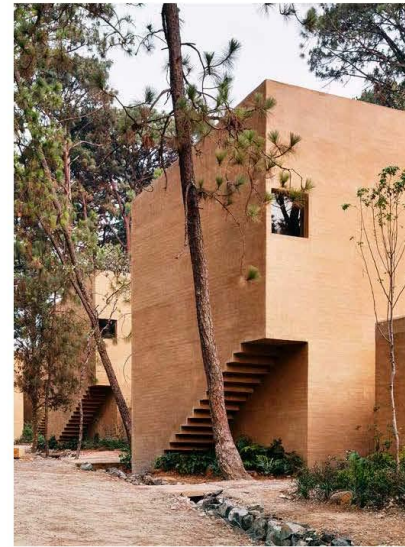
Each house has a closed elevation to the north but is open to the south, providing views of the forest. The 30 cm (12 in.)-thick brick walls of each dwelling were coated with a mud render, made by mixing soil excavated for the foundation with clay and cement. This was then applied by hand, resulting in a warm and pulsating glow, inside and out.



TRIAS
Slate Cabin, 2017
Snowdonia, Wales, UK

This writer's retreat on the edge of Snowdonia National Park was inspired by the bedrock of Wales: slate. The architects, therefore, chose to clad the structure with tiles of reclaimed slate, gathered from nearby farms and marked by weather and time. Wales is a unique landscape, scattered with stone-strewn mountains, abandoned quarries and old slate-covered

farmhouses that have stood for hundreds of years; they note—qualities that encouraged them to base their design around this locally significant natural resource.



Gartnerfuglen Arkitekter +
Mariana de Delás
Gjemmestad, 2017
Telemark, Norway

This little hideaway, a collaborative effort between Norwegian firm Gartnerfuglen Arkitekter and Spanish architect Mariana de Delás, was dug into the steep rocky slope facing a small mountain lake. When in use, it serves as a fishing cottage and retreat, and is only accessible by boat. 'It is this desire to reunite with nature that determined the

inconvenient site, behind a rock and lacking mobile and internet reception,' the team explain.

The site was dug out by hand, with roots placed in the water to form a pier. The timber skeleton was clad with birch twigs to camouflage the hut and insulate it by forming a pocket of air. A large picture window reflects the water below; from the inside, it opens up onto picturesque views of the outdoors. The interior is intimate and divided into a live/work space with a built-in desk and upper-level sleeping area for two people.

Mary Arnold-Forster Architects
An Cala, 2019
Sutherland, Scotland, UK

This single-storey house, comprising thirteen individual modules, is situated at the top of Loch Nedd in the Scottish Highlands, in a landscape characterized by empty moorland and nearby woodlands of birch and rowan. It faces a loch and is surrounded by the heather, peat and grass typical of the area. The exterior is covered with a thin larch rainscreen cladding that resembles

birchwood in winter. 'My intention was to celebrate this landscape, which is key to the sense of place,' says architect Mary Arnold-Forster, 'by lifting the building up off the ground and to avoid any rocks breaking at all.'



Responsive building

Ensamble Studio
The Truffe, 2010
Costa da Morte, Spain

This small vacation retreat on the Galician coast is the result of explorations into a process set into motion, but not controlled, by the architects. 'We wanted to tell a fable about nature through architecture,' explains team leader Antón García-Abril. Without being certain what the consequences would be, the team engaged with the materials at hand, placing bales of locally sourced

straw into the earth and covering it with concrete to cure. After a year, the mound was cut open and the neighbour's calf completed the process by eating the hay inside. The interior space was also not designed, but the result of happy accidents. The soil that surrounded the concrete while it cured gave the material its final texture and colour, while the contours of the space came about through a natural process instigated by human intervention.



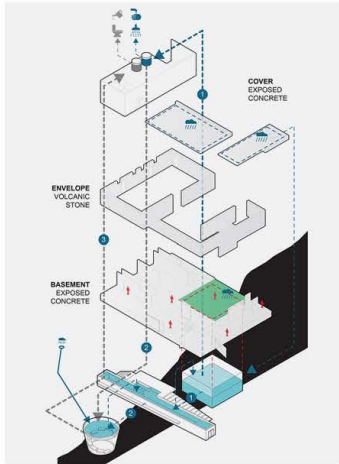
Blending in

EDAA
Casa Maztita, 2004
Tapoztlán, Mexico

Casa Maztita in Tapoztlán, south of Mexico City, was built from materials that will age naturally and blend into the surroundings: concrete for the foundation, volcanic rock and cement for the walls and white cement and lime for the render. No mains water is needed for the house, as all rainwater filters in but does not drain away quickly. A covered potable water reservoir lies beneath

the grass patio and a large, circular open maintenance reservoir at the lowest part of the home harvests unabsorbed rain and grey water. The swimming pool is filled with reused water.

"Most new housing projects view inhabitation as a very specific situation," says architect Luis Arturo García, "but it's your own environment that needs to provide these in the best possible way."



ASSIMILATE

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Tatiana Bilbao
Los Terranos, 2006
Monterrey, Mexico

In this 480 m² (5167 sq ft) holiday retreat built on a forested hillside, two separate buildings containing different living functions are set at opposite corners of the site, an intentional response to the landscape and engagement with an organically shaped pool at the centre. Completely clad in mirrored glass, the volumes of the two structures dissolve into the

trees only to emerge again, like a mirage. The larger building holds a kitchen, living room and dining area with direct access to the outdoors. The smaller, L-shaped structure of clay and rammed earth blends in with its surroundings and is partly below ground level. It houses two bedrooms, facing in opposite directions, each of which has a stacked, or terraced, interior and offers connection to outside space through retractable glass doors.

Reform Architekt
Izabelin House, 2004
Izabelin, Poland

In order not to dominate the site of this home in eastern Poland, the architects clad the lower level with reflective panels. This allows the house to "disappear" into the forest, with the upper storey seemingly floating among the trees.



A QUIETER PATH

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Plastic with purpose

Tateh Lehibb
Plastic Bottle Houses, 2016-17
Tindouf, Algeria

Twenty-seven of Tateh Lehibb's Plastic Bottle Houses were built at the Sahrawi Refugee Camp, with each requiring around 6,000 bottles, packed with sand and then stacked horizontally. Inside, the walls were covered with a layer of earth and straw, and topped with a thin layer of cement, which also covers the outside. Houses in the camps are usually made from adobe, fabric

and metal sheets, and are often destroyed by sandstorms and torrential rains. In Lehibb's designs, the buildings are circular, which helps the walls to hold together with more compression, and the bottles are bound together with cement or clay. All of the materials can be sourced locally: sand and cement are sold in the camp's shops, and the straw and bottles can be sourced from the residents. The interior temperature is also up to 5°C lower. 'The residents have said they like the building because it is

cooler in summer and warmer in winter, as well as the fact that they are soundproof and have been made from simple and economical materials found discarded in the street or in the desert.'

Albatoul Mohammed, who lives at the camp with her husband and son, was given one of the houses after the family's home was damaged by floods in 2015. 'At first I refused it,' she says. 'I wasn't convinced by the idea. But then I discovered that it was the invention of a young Saharan refugee and that it could withstand

tough climate conditions. I accepted the house, because we desperately needed it - our son has special needs and finds it very hard to live in these tough conditions. Now we feel safe - the house isn't affected by rain or heat, unlike the adobe houses covered with sheets of zino. I'm very proud of the design, and that was the idea of a refugee who lives in the camps and saw first-hand how his people were suffering. The house has had a big impact on our lives - not only the building itself, but also the use of plastic bottles and other waste

that can't otherwise be disposed of here in the camps. We can sleep safely during sandstorms and heavy rain. There's no substitute for safety, because we can't live without it.'

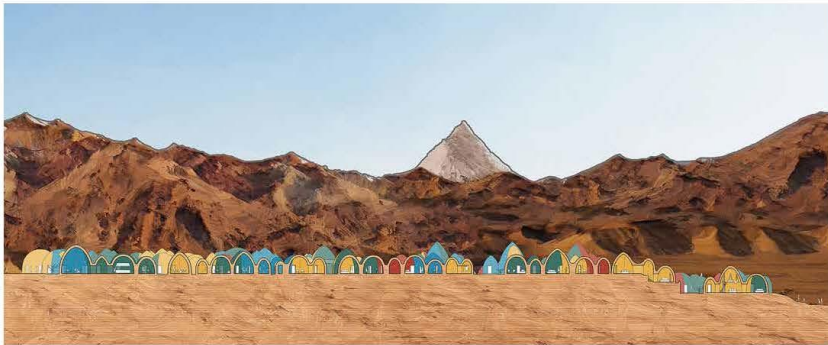
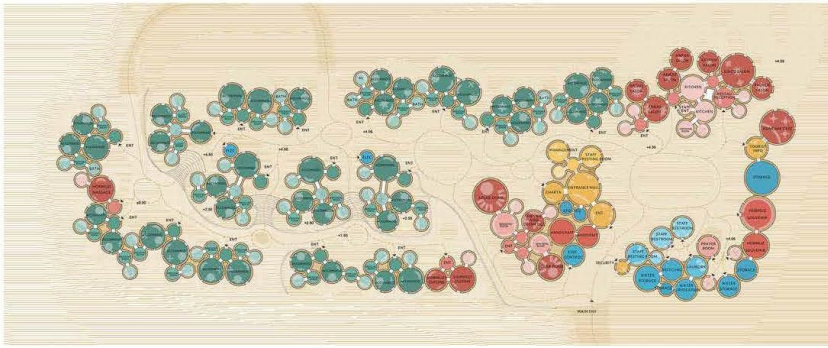


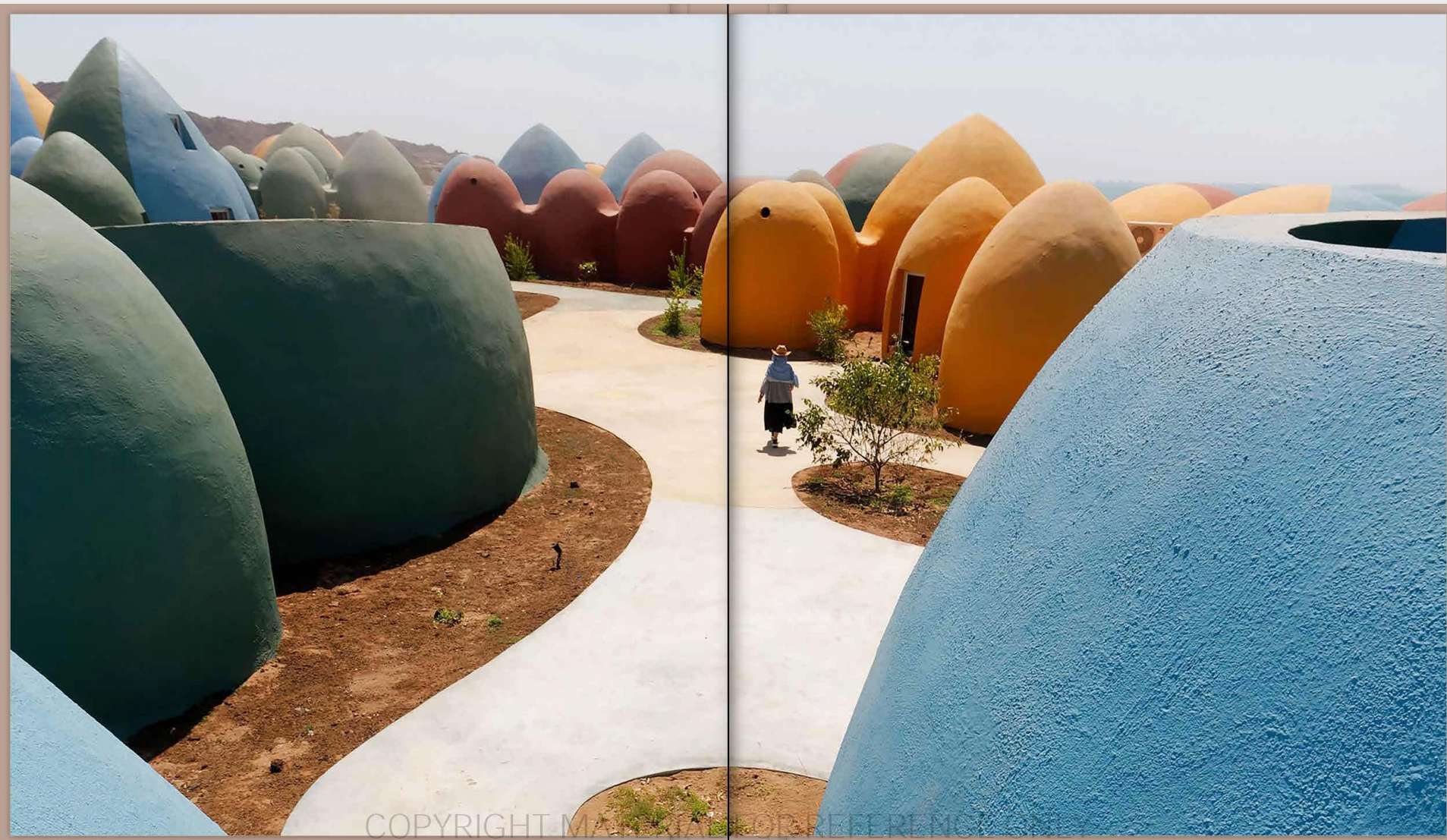
Earth-bag architecture

ZAV Architects
Prasnoe in Hormuz 2, 2020
Hormuz, Iran

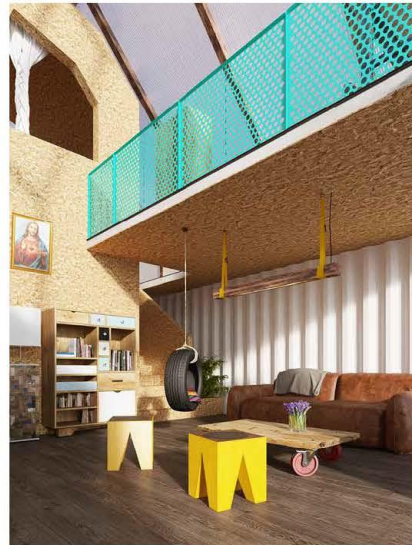
For their colourful project located on Hormuz Island in the Persian Gulf, Tehran-based studio ZAV Architects employed the SuperAdobe system, a form of earth-bag architecture developed by CalEarth founder Nader Khalili. According to the design team, the existing construction knowledge at a local level was basic. But by using the SuperAdobe building

method, residents of the island who were participating in the project could learn and develop new skills. By modifying the original building technique, the architects were able to alter the shape of the crests of the two hundred or so domes that comprise the holiday village, making them both wider and lower to reflect the surrounding landscape and skyline.





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Re-imagining silos



MUD Projects
Little Pea, 2013
Rotterdam, Netherlands

Culture Campsite, located on a disused car park in Rotterdam, offers sustainable camping within a green city oasis. Dutch firm MUD Projects was part of the team behind the concept, which allows visitors to experience staying in shelters made from waste architecture—in the case of Little Pea, discarded animal silos. It was originally designed as a mobile shelter, fitted to a pick-up truck.

Different pieces of the silos were assembled to create a self-sufficient living space, complete with a sofa, table, storage, heating and a kitchen with gas and running water.



MUD Projects
Val Ross, 2013
Rotterdam, Netherlands

Another accommodation option at the Culture Campsite complex is Val Ross, a small-scale sleeping pod made from an old silo found on a Dutch farm. As with all of their projects, the architects sketch and design with whatever is to hand. Playing with form, material and colour leads to new insights and shapes that couldn't otherwise be visualized on paper.

Of MUD Projects' waste architecture, founder Boris Duijzeveld notes the trick is to take the object out of its old context, so that it is no longer recognizable and becomes a new design: "Through this process, an innovative way of looking at existing materials and objects develops. It creates a conscious view of modern life with all the abundance of material and its value."



Refuno
Silo House, 2013
The Hague, Netherlands

Silo House is a 13 m² (40 sq ft) mobile house experiment built from an old grain silo and reused materials. Refuno's first working example of vertical micro-architecture is a test case for both residents and the surrounding public space. Like life in a space station, on-board solutions are minimal and make a link to low-cost, energy-saving and small-footprint housing.

As Refuno co-founder Jan Korbes explains: "Life on three floors connected by a climbing wall can change your habits and ways of looking at the world. We call this design an "active house" - residents must climb down to fine up the wood stove, then up again for a tea with a view, swing outside to collect fresh herbs or spend a moment in the public garden to wake up, then shower and hang out in the art centre, where artists from all over the world gather to meet and work."

The building is made from a 7 m (23 ft)-high, 2.4 m (8 ft)-diameter agricultural feed silo. Construction took eight months. The floor area is 13 m² (40 sq ft), and comprises a sleeping level, living space and kitchen, library and technical services, and provides accommodation for two people. Features include an airlock entrance, climbing wall, bathtub, dry toilet, basement library, panorama window, micro-balcony, rainwater system and garden units.

