

1 1/2
Storey off-grid
Rural paired lodges



The 1.5 storey laminated timber framed tiny house

These units are designed to sit in pairs with shared outside sheltered landings. The cladding is either stained timber weatherboarding or non combustible cementitious shiplap board. Each unit can be towed to deployment sites by Landrover.

All homes are built to similar ZED-specifications – however the construction method changes to suit on site or off-site manufacture.

In both cases we use a flat pack kit of parts with the following features:

- Heat recovery ventilation
- Non-combustible rockfibre insulation
- Triple glazed low E timber windows
- Vapour permeable breathable airtightness barrier achieving 1 ach @ pa test pressure
- Air source heat pump integrated with a hot water cylinder providing hot water and feeding one radiator
- Small bathroom
- Living Room with patio doors opening onto a balcony large enough for a small table and chairs long life one piece Epdm flat roof
- Tilting adjustable monocrystalline solar electric panels to catch southerly orientation
- Integrated exchangeable ZEDpower battery system
- LED lights
- Either saniflow pumped drainage or composting toilet sanitation options
- Small kitchen with stainless steel worktop, sink, oven and induction hob plus dining table opening onto a balcony large enough for a small table and chairs.



Small is Beautiful ?

These tiny zero carbon homes just provide the right amount of useful space that people actually need to live in dignity and comfort.

This means reduced floor areas and smaller internal volumes — however space is used more carefully, with reduced headroom over beds (where people sleep), but double height living rooms with toplight.

The smaller homes mean construction costs/m² can increase and pay for increased durability and vapour permeable natural materials, avoiding the use of toxic Grenfell materials such as urethane foam insulation.

The increased energy efficiency makes it possible to meet reduced energy demand and achieve net zero energy bills with a combination of building integrated renewable energy and battery storage.

The homes can be simpler and easily assembled from prefabricated components using local labour and a kit of parts with a training scheme

The homes sit on ballasted raft foundations and can be deployed on new sites with near zero waste, permitting the use of 5 year temporary planning applications.

The homes can be rented directly from the manufacturer who could keep stock to meet demand

The communities can be officially registered as urban camp sites containing Air BnB accommodation

All of these can be designed with off grid capability, with super-insulated building fabric, vapour permeable airtight construction, heat recovery ventilation, exchangeable 1kwh LIPo4 batteries, high efficiency integrated solar panels, and small heat pumps producing heating and hot water. Options allowing the integration of waste water tanks or composting WCs enable the prefabricated modules to work well on most sites. If drainage is available — conventional black and grey water strategies are adopted. Fresh drinking water is however required to each site. If not truck mounted bowers will fill the integrated fresh water tanks. All the typologies can be moved and redeployed on another site with near zero waste, and at low cost.



Housetype

1½ Storey off-grid paired lodges with sedum roof and larger communal area



1 East-west



2 North-south

1½ Storey off-grid paired lodges fits into carpark grid



Typical floor plan

Ground floor plan



First floor plan



Ground floor plan



1½ Storey off-grid paired lodges
with sedum roof and larger communal area

1

East-west



GIFA per paired lodge

53.6 m²

2

North-south



1½ Storey off-grid paired lodges with sedum roof and larger communal area

GIFA per unit

26.8 m²

Wall-mounted solar-charged
exchangeable batteries
6 x Units



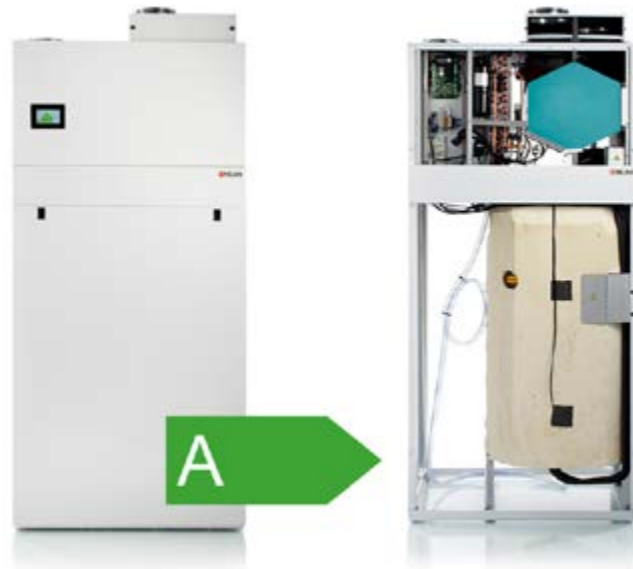
Ground floor plan

Wood Stoves



1½ Storey off-grid paired lodges with sedum roof and larger communal area

Nilan Hot water storage tank with heat recovery ventilation and air source heat pump



First floor plan



1½ Storey off-grid paired lodges
with sedum roof and larger communal area

1

East-west



Shared steps lead to a shared landing with a generous glazed porch sheltering each front door.

Cooking is done on a Green Egg free-standing barbecue that is shared between two units, however one small induction hob and a kettle will be installed in each micro kitchen.

Barbecue facilities



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with sedum roof and larger communal area

1

East-west



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1

East-west



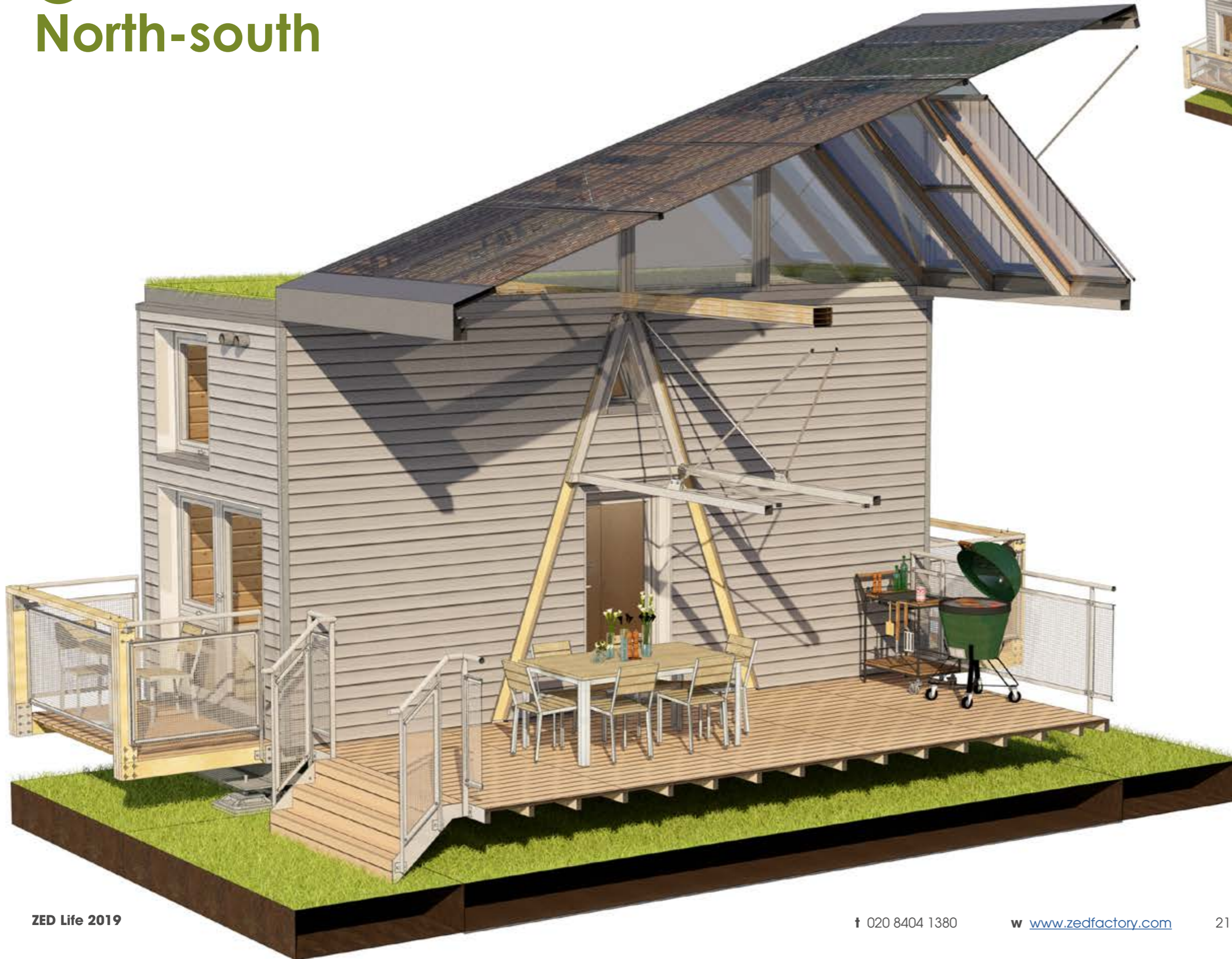
1½ Storey off-grid paired lodges
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2 North-south



1½ Storey off-grid paired lodges
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2 North-south

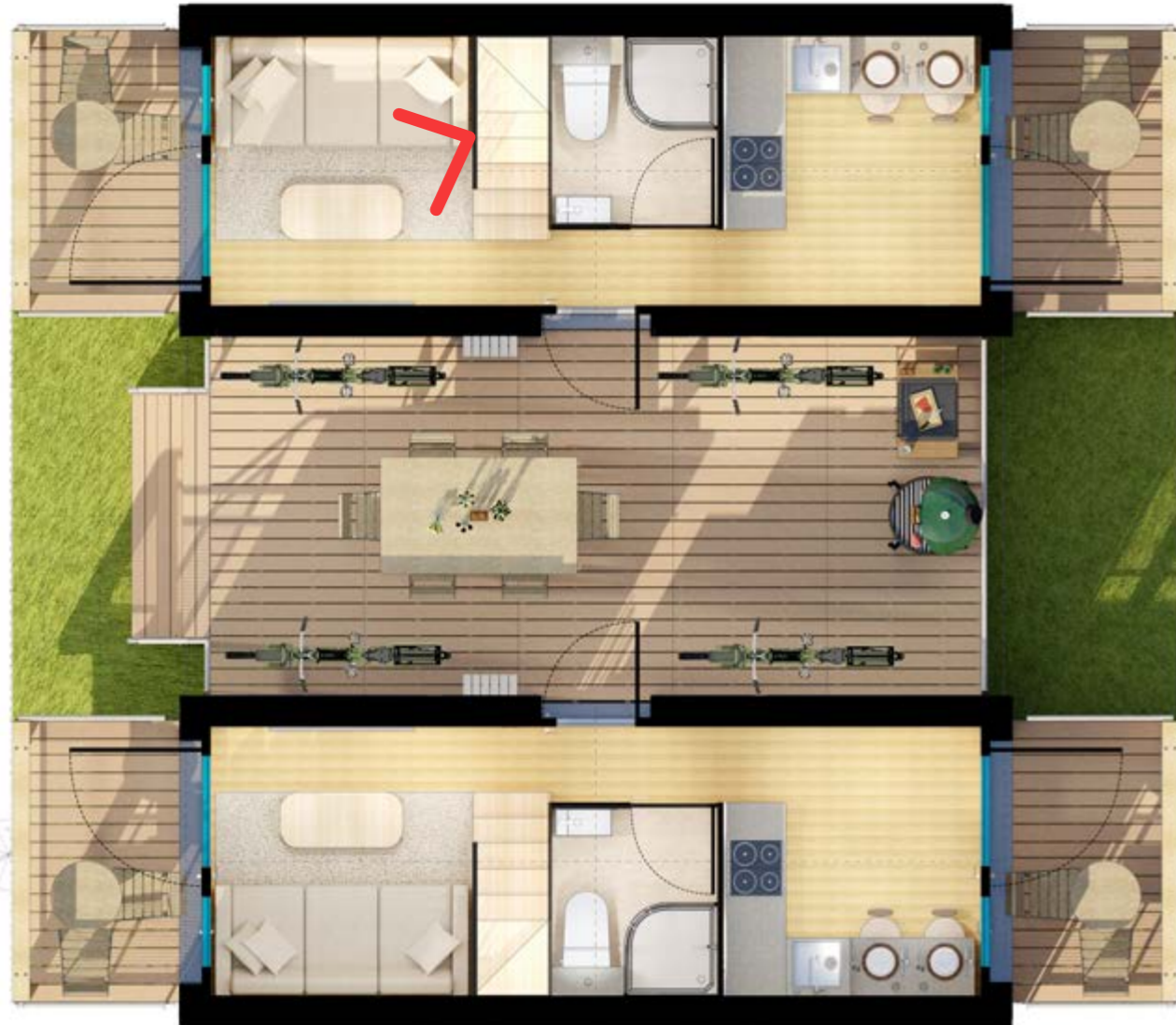




View of the communal area



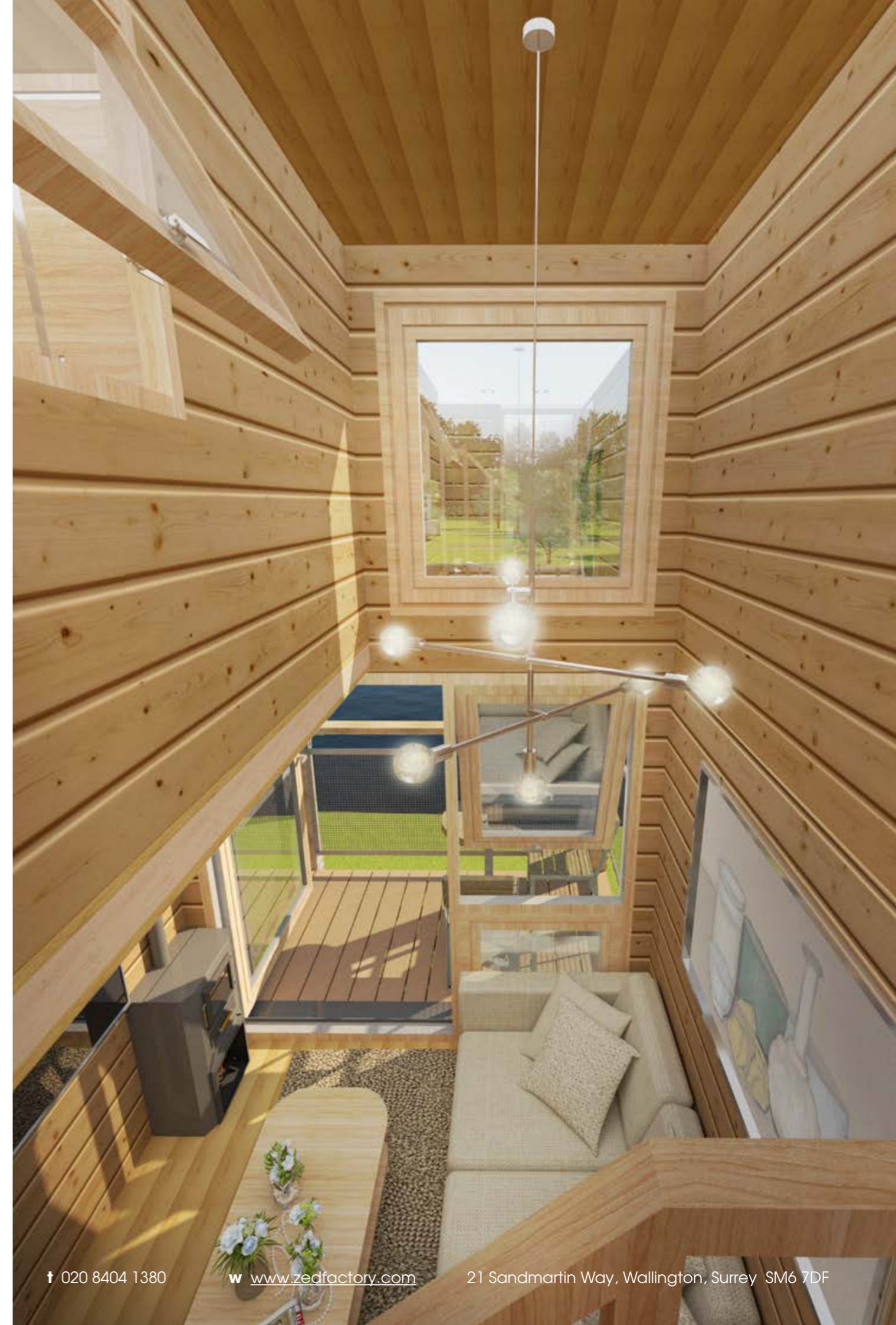
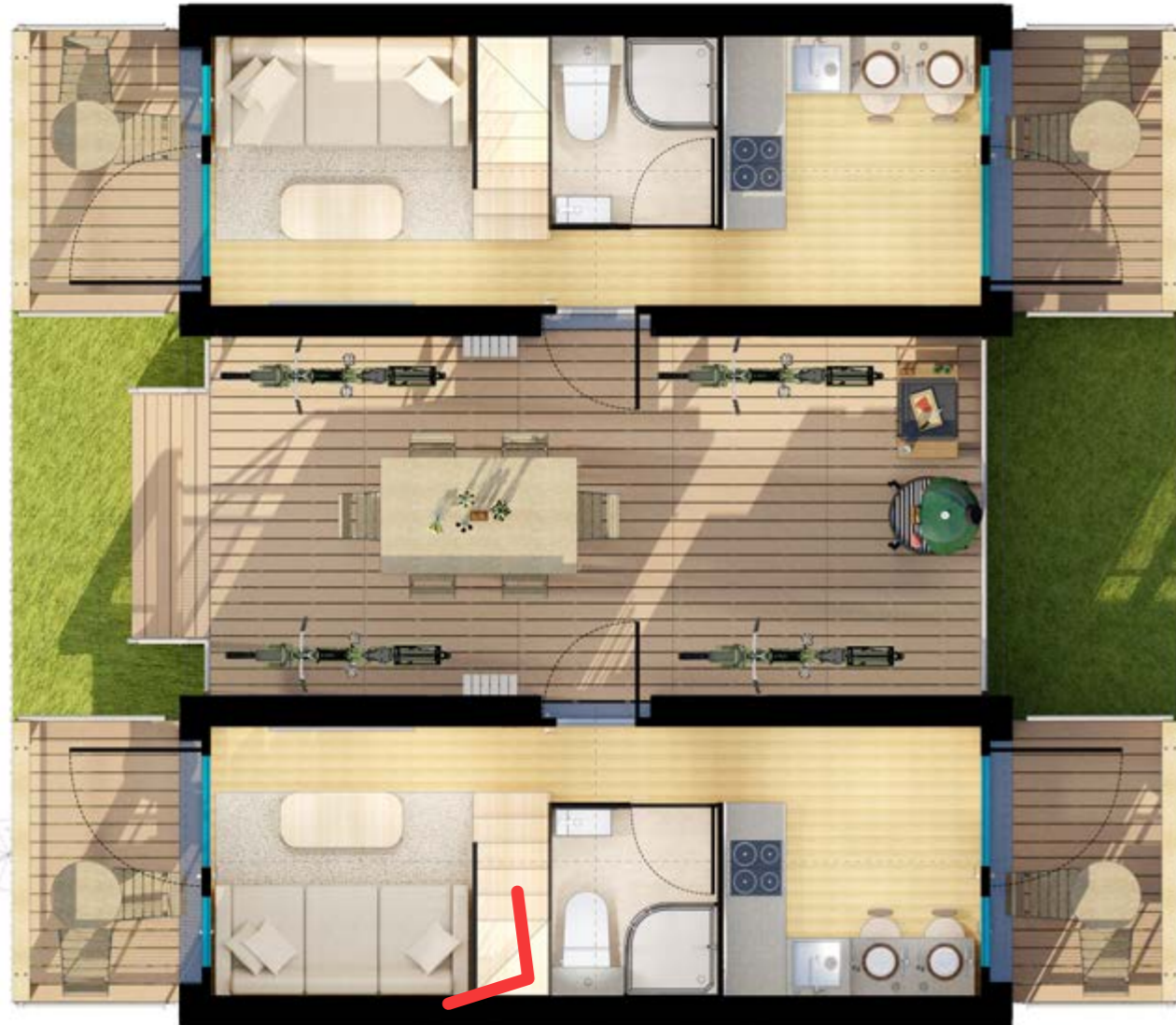
View of the double height space



View of the double height space



View of the double height space



View at the balcony



View of kitchen and dining space



View of bedroom at First floor





Solar Trees

(With solar-charged exchangeable batteries)



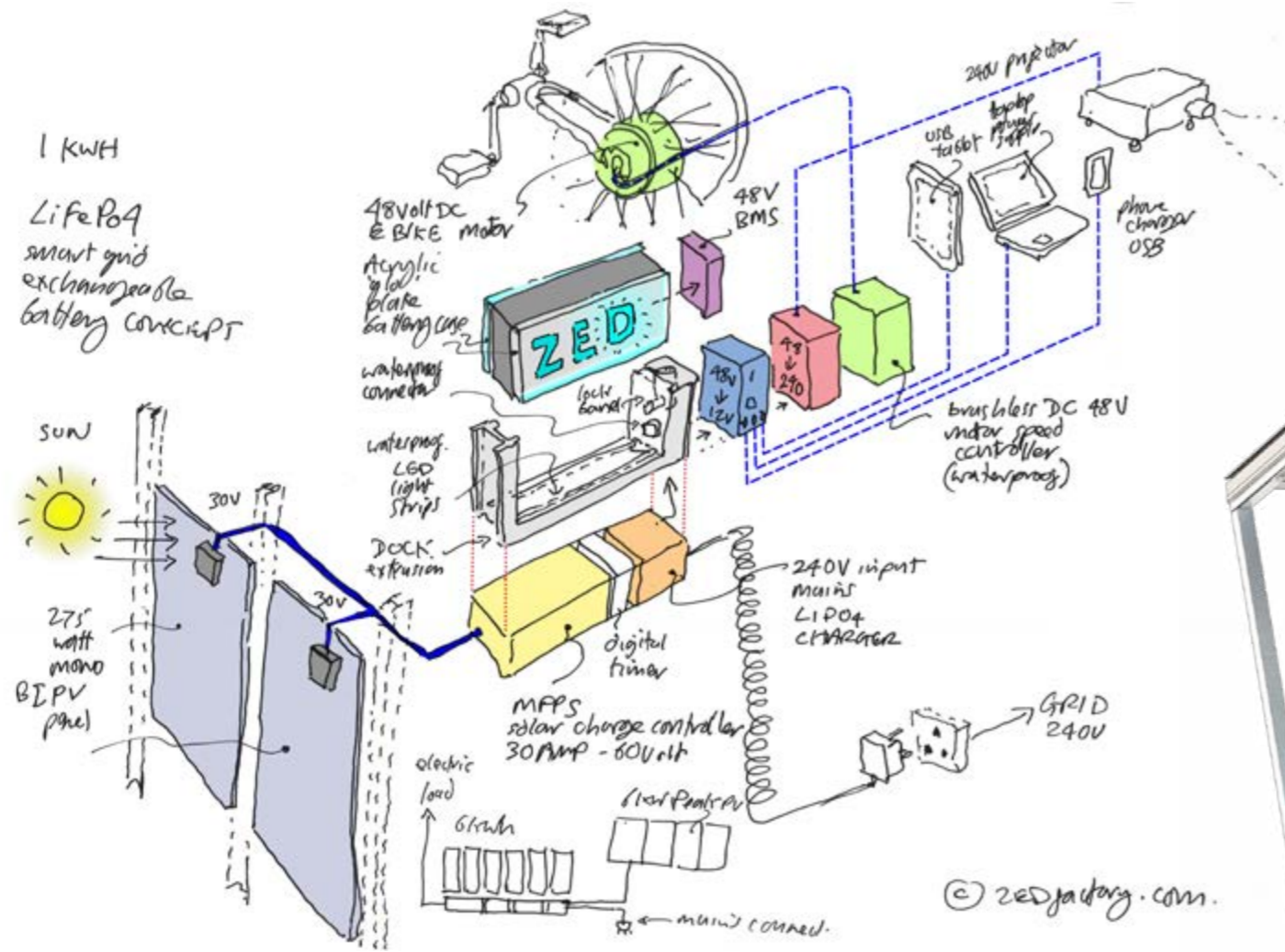
- A** Translucent 255W solar panels
- B** Secure store
- C** Galvanised steel frame
- D** Solar powered E-bike
- E** Inverter and battery dispenser
- F** Foundation-less integrated gabion
- G** Wifi Transmitter and device charge outlet
- H** Tensile hammock trampoline floor

ZED E-bikes

(Powered by 2 x solar-charged exchangeable batteries)



Solar-charged exchangeable battery system



This 1kwh battery that could power anything. It is the heaviest battery that everyone in our office can comfortably handle. You no longer need to buy a battery with every appliance because the modular ZEDpower battery is interchangeable. It can configure automatically to match the size and electrical demand of each application.

It is charged very simply from two 250watt mono solar panels with a charge controller etc. This number of solar panels will charge one battery in one day in most climates.

Now, we use LIPO4 battery chemistry because it is safe and stable and has the longest battery life. Providing the average discharge stays at 75% between 2500 and 5000 charge cycles can be expected. The maximum depth of discharge can be pre-set.

BIPV façade super-insulated over-cladding, once added to existing buildings, charges exchangeable batteries from room to room.



