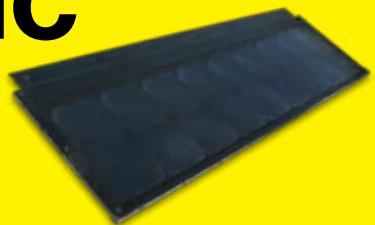


Don't Miss Out on the roofing revolution



Solar Electric Roof Tiles & Slates



solarcentury

ROOFSHOP

Roofs are changing...

Legislation from Government and consumer demand is driving a change in roofing. 'Active roofs' incorporating solar energy systems are becoming increasingly popular. Roofers with the skills to install solar energy systems are in short supply, being able to install C21e presents a good business opportunity.



...roofs can make energy.

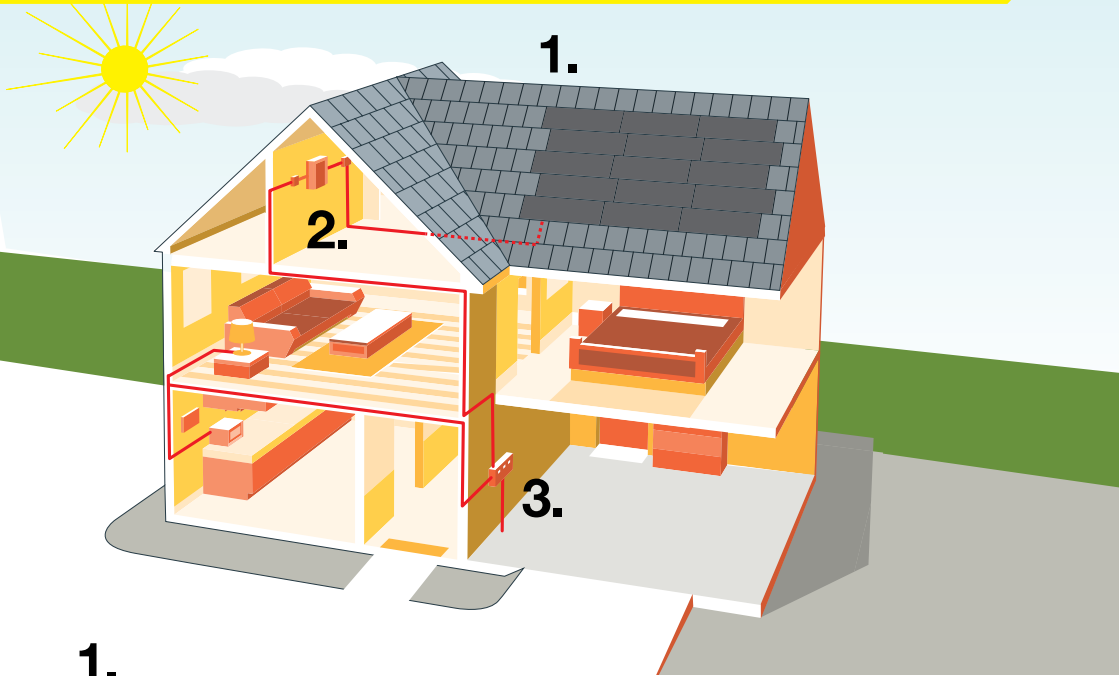
C21e solar electric roof slates and tiles, from Solarcentury, the UK's leading solar energy company, generate electricity using daylight. They are simple to install, fixing directly to standard roofing battens, and can add significant value to a house.

Solar energy is increasingly popular with homebuyers, self-builders and renovators. By being able to offer and install solar energy systems you could win more work and add value to your business.

Solar installation training courses are available to help you become a C21e Approved Installer. Call us now on 020 7803 0253.



How C21e works



1.

When daylight hits the solar tiles, which contain photovoltaic cells, it is converted to clean electricity. This process relies on daylight to work, not direct sunlight, so the tiles still produce electricity on cloudy days.

2.

The electricity produced by the tiles flows along a cable in the loft to an inverter. The inverter converts the electricity from direct current (DC) to alternating current (AC), which is used in the house in exactly the same way as the electricity from the grid.

3.

When the solar electric roof tiles are producing more power than is needed in the home, electricity is exported and sold back to the utility company. At night, when the system is not producing electricity, power is imported from the grid in the normal way.

The solar installation needs very little maintenance from the homeowner, there are no moving parts and normal rainfall should keep the tiles clean.

Case Study: **The Merrill Family**

Walking into the Merrill's family home in Somerset, it all seems very normal.

The only evidence that the Merrill's home is powered by C21e solar tiles is the small display unit on the kitchen table showing how much energy is being generated.

"It's hard to remember the solar tiles are there sometimes" says Dad, David Merrill. "But it's a great feeling to know that we're generating our own power."

When David had the home re-valued he was pleased to find it had increased in value by 6% because of the tiles alone.



Case Study: **Gleeson Homes**



Gleeson chose to offer homebuyers the choice of Solarcentury's C21e solar electric roof tiles on two homes within their Norfolk Park development.

Gleeson Homes analysed homebuyers' interest in the C21e homes against an otherwise identical, conventional townhouse.

The three-bed townhouses with C21e solar tiles sold at a premium of 8.6%.

The results confirm the findings from the Energy Saving Trust that there is significant demand from homebuyers for homes with lower energy bills.

Simple Installation

Each C21e covers the width of four conventional tiles or slates, fixing to standard roof battens with stainless steel screws.

“We tiled right to left in one morning, just as you would any regular slating product. We only needed to be shown how to do it once, and now the boys are waiting to go on the next roofs. It’s a good little product.” Clive Evans, Crest Roofing





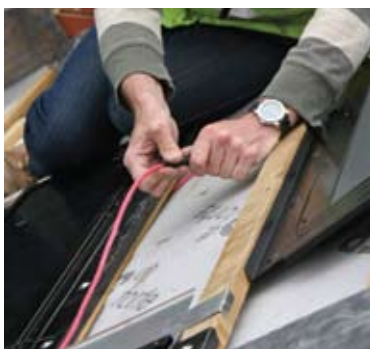
Fast to install

C21e solar electric roof slates are as fast and easy to install as conventional slates. Each unit can be carried onto the roof by one person and is easily manoeuvred into position.



Standard battens

The nib of each slate hooks onto the roof batten and fixed in place with stainless steel screws, roof-hooks or nails. Specially designed soak trays provide a weather-tight interface between each C21e and conventional slate avoiding the need for any bespoke flashing.



Simple connections

The solar slates are joined together with simple push-fit connectors. Each slate in the installation is connected to the next, as they are laid onto the batten.



Separate trades

When all of the solar slates have been installed, the final pair of cables are passed through into the roof space, ready for the electrician to finish the installation.

Choosing your system

Selecting the right system for your project depends on three things:

- The type of tiles or slates you will be using around the C21e tiles/slates
- The size of un-shaded roof area available (length and width)
- And the amount of energy required; larger systems will make more electricity.

C21e is compatible with several types of tiles and slates, and should only be installed with one of the following:

Roof Tile Compatibility	
Cemex (Russell)	Grampian, Highland
CRH/Northstone (Scott)	Slemish Mk 2
Lafarge (Redland)	Mini Stonewold
Lagan	Flat Tile
Marley (Eternit)	Modern, Duo Modern
Quinn	Western slate
Sandtoft	Calderdale, Calderdale Dual

Roof Slate Compatibility	
Natural Slate:	SIGA 600x300
Reconstituted Slate:	600x300
Fibre Cement Slate:	600x300
Marley Eternit	Birkdale, Garsdale (600x300) Rivendale, Thrutone (600x300)

(A wider range of compatible slates is due for launch in the Autumn)

C21e slates require a slightly larger roof area than C21e tiles.

Use the following table to work out which size of system will fit the roof and how much energy it will generate. Select the appropriate Product Code to order your system:

System Size	Electricity per year* ^[1]	CO ₂ Offset per year* ^[2]
18	777	441kg
24	1036	588kg
36	1554	883kg
48	2072	1177kg
60	2590	1471kg
72	3108	1765kg

C21e Tile format		
Min Roof Length**	Min roof Width†	Product Code
3.6m	3.1m	10215-02
3.3m	4.3m	10215-03
3.6m	5.5m	10215-04
4.6m	5.5m	10215-05
4.0m	7.8m	10215-06
4.6m	7.8m	10215-07

C21e Slate format		
Min Roof Length**	Min roof Width†	Product Code
3.8m	3.9m	10771-02
3.5m	5.1m	10771-03
3.8m	6.3m	10771-04
4.7m	6.3m	10771-05
4.1m	8.8m	10771-06
4.7m	8.8m	10771-07

[1] For a south facing roof, generating 830 units (kilowatt hours - kWh) per kWp

[2] Using SAP calculation method for grid displaced electricity - 0.568kg per kilowatt hour

* kWh (kiloWatt hour)

** Measured Eaves to Ridge

† Measured Verge to Verge

C21e specifications



Dimensions

Tile format

Slate format

Size	1220mm x 420mm overall 1180mm x 300mm exposed (at 90mm headlap)	1210mm x 406mm overall 1210mm x 285mm exposed
Covering width	1180mm	1210mm
Minimum pitch	22.5°	30°
Gauge (batten spacing)	345mm (maximum) 320mm (minimum)	285mm for C21e slate format courses
Headlap	75mm (minimum) 100mm (maximum)	121mm for C21e slate format courses
Covering capacity (net.)	3 PV tiles/m ²	3 PV tiles/m ²
Weight	8kg	5.1kg
Weight of tiling	24kg/m ²	15.1kg/m ²
Batten size (fixed to BS 5534)	Up to 600mm rafter centres - 50mm x 25mm	Up to 600mm rafter centres - 50mm x 25mm
Screws and fixings	4 No. 4.5mm x 45mm self tapping stainless steel screws (supplied with tile). Edge clips are available as an option.	4 No. 4mm x 20mm self tapping stainless steel screws with EPDM washer, slate hooks and soak trays (all supplied).

Please refer to the C21e design guide for details on headlap and batten spacing.

Solarcentury C21e systems must be laid and fixed to comply with BS 5534: the British Standard Code of practice for slating and tiling, and BS 8000: Part 6: the British Standard Code of practice for workmanship on building sites.

C21e is designed to be installed in standard layout configuration.

The following should be used as guide but other layouts are possible, please contact us for more information.

System size	Number of rows	Number of columns
18	9	2
24	8	3
36	9	4
48	12	4
60	10	6
72	12	6



Frequently Asked Questions

Does it work in the UK?

Yes. The photovoltaic cells used in C21e do not need to be in direct sunlight to work, and will generate electricity even on cloudy days. The brighter the day the greater the energy generated.

Don't the tiles require lots of energy to manufacture?

The energy generated by one tile will 'pay back' the energy required to make it in roughly four years in the UK.

Is C21e compatible with the tiles/slates that I want to use?

C21e has been designed to integrate with a range of tiles from leading roof tile manufacturers. (Please refer to previous page)

Does the system need batteries?

No local battery storage is required, as the C21e system connects to the local electricity supply, and any excess power can be sold back to the electricity company.

Does C21e require planning permission?

The benefit of C21e's building integrated design is that no additional planning consent should be required for standard new-build developments. Solar tiles can sometimes help get planning permission when Local Authorities set carbon reduction targets, or builders need to meet the Code for Sustainable Homes.

Do the C21e tiles need maintenance?

C21e tiles and slates are silent in operation and have no moving parts, so no maintenance is required. The design of the tiles means that any dust or dirt that accumulates on the tiles should be washed off during normal rainfall.

How long do they last?

The tiles and slates have a power warranty of 25 years and are expected to provide generation for fifty.

How can I find out more?

Call our roofing support team on 020 7803 0258, or email roofing@solarcentury.com

Where can I buy C21e?

C21e systems are available at any Roofshop branch. To find you local branch please visit www.roofshop.co.uk or call 0845 863 0834



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