

Cathy Strongman

the sustainable home

the essential guide to eco building, renovation and decoration



MERRELL

FOCUS HOUSE

LONDON
UK

Focus House is an unashamedly modern building that uses progressive materials to create an energy-efficient family home. Frustrated with living in a high-maintenance and inflexible Victorian end-of-terrace house, the client commissioned Bere Architects to create an economical and easy-to-maintain home on the adjacent triangular plot. The resulting property is a daring metallic building that uses its site to the maximum but minimizes the occupants' demands on the earth's resources.

The house is constructed from stacked metal-clad blocks punctuated with sizeable glazed areas. This cascading box arrangement maximizes light while neatly demarcating the internal spaces. The west elevation, which looks out on to the street, is a mere 2.8 metres (9 feet) wide and politely slots in next to its Victorian neighbour, but at the rear the

building spreads out to the boundaries of the site, reaching a width of 7 metres (23 feet). On the ground floor an open-plan living, kitchen and dining area opens with sliding doors on to the garden. A short flight of stairs leads to the first floor, comprising two children's bedrooms, a bathroom and a study, which juts out dramatically over the front entrance. The second floor is reserved for the parents and contains a master bedroom and bathroom with commanding views. Lighting fixtures and extensive storage units in the internal walls, coupled with generous ceiling heights and bright finishes, make the 250-square-metre (2690-square-foot) house feel larger than it is.

The basic building material is cross-laminated timber slabs that look like giant lengths of plywood. Strips of Austrian spruce are glued crosswise on top



of one another to a thickness of 200 millimetres (8 inches) using a solvent- and formaldehyde-free adhesive, producing incredibly strong panels that can span larger distances than conventional timber. Used for wall, floor and roof slabs, the panels were prefabricated in Austria with window and door openings factory cut, enabling the building to be constructed and fully fitted out in just six months.

The architects decided to build with wood because of its low embodied energy and because timber continues to act as a carbon store after felling. They have estimated that during its lifetime the timber frame will have removed 42.37 tonnes of carbon dioxide from the atmosphere, where an ordinary Portland cement structure would add 32.42 tonnes of carbon dioxide to the atmosphere through the burning of fossil fuels during its

manufacture. Transporting the wood by lorry from Austria caused 2.97 tonnes of carbon dioxide to be emitted, but the statistics are still impressive.

The remaining construction materials were also selected for their environmental performance. The concrete of the slab and foundations contains 70 per cent GGBS (ground, granulated blast-furnace slag), a by-product of iron production. The frame is lined with 200-millimetre-thick (8 inches) sheets of Foamglas insulation, and the whole is clad in a skin of zinc, which has the lowest embodied energy of any metal and is 100 per cent recyclable, as well as being durable and requiring little maintenance.

The design of the Focus House draws on many PassivHaus principles. As well as being extensively insulated, the house is airtight thanks to meticulous detailing and high-quality Scandinavian windows that

Opposite, left: The walls, floor and roof of the house are all made from slabs of timber, which continues to act as a carbon sink long after it is felled. The cladding is of zinc, which is durable and recyclable.

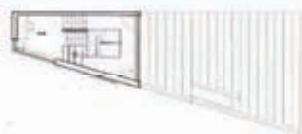
Opposite, right, and below: Spreading from 2.8 metres (9 feet) at the front to 7 metres (23 feet) at the back, the house takes full advantage of its triangular site, using a hidden pocket of urban space and helping to prevent urban sprawl.





are double-glazed and timber-framed. A heat-recovery system channels fresh air into the building while helping to regulate the internal temperature and minimizing the need for additional heating and cooling. Solar thermal panels on the south elevation generate on average 50–60 per cent of the house's hot water requirements, varying from 100 per cent in the peak summer months to 5 per cent in the depths of winter.

Despite its radical appearance, Focus House was submitted for planning permission with many letters of support from neighbours, and met with no resistance from planning officers. It demonstrates how modern techniques and materials can be used to create visually innovative buildings that use minimal energy both in their construction and in their occupation. High-density urban centres are now being seen as crucial to the long-term survival of the planet, since they preserve precious green countryside and cut down on the distances people and goods have to travel. Such inventive projects as the Focus House, exploiting every last awkward scrap of redundant urban land to create spacious dwellings, will help make this a reality.



Top, left and right: The staggered arrangement of the house's box-like elements allows for more windows, bringing in natural light at every level, while the boxes delineate different areas within the house.

Above, left to right: Ground-floor plan; second- (top) and first-floor plans; south elevation (top) and section.



The ground-floor living and kitchen area is one continuous space entered at the front door and exited via large sliding doors into the garden. Good insulation, double-glazed windows, solar panels and a heat-recovery system all make the house easy and economical to maintain.



TOTAL FLOOR AREA
250 square metres (2690 square feet)

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