

HOUSES[®]

RESIDENTIAL ARCHITECTURE MAGAZINE

intelligent extensions
ALTS + ADDS IN FOCUS

ROBIN BOYD'S BAKER HOUSE REVISITED



O'CONNOR + HOULE IN PROFILE

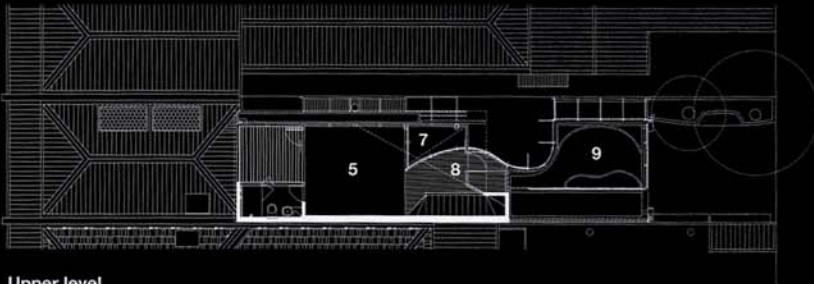
AMONGST THE TREES Middap Ditchfield, Design King
ADDING ON Built Environments Studio, Hungerford + Edmunds, Form
BY THE SEA Melocco & Moore, Bellemo & Cat GREEN HOUSE Zen
SUBURBAN SAVVY Quinton-Margallt, Richard Kirk



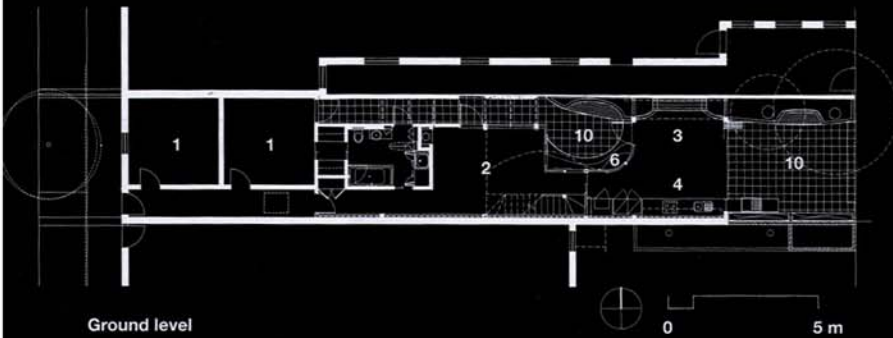
THE OUTSIDE IS IN: PRODUCT UPDATE

Zen Architects' commitment to environmentally sustainable design, the inclusion of a roof garden and the client's

urban jungle



Upper level



Ground level

- 1 Bedroom
- 2 Living
- 3 Dining
- 4 Kitchen
- 5 Studio
- 6 Pond
- 7 Void
- 8 Bridge
- 9 Roof garden
- 10 Courtyard

love of indoor plants make this North Carlton house green in more ways than one.



IT MAY SEEM NAIVE at first, to base the look of a building on the curve of a palm frond. It could be a bit too simple, a bit too literal for the extension of a row house in inner-Melbourne that happens to have some old palm trees in the backyard. But after you take into account the sheer number and variety of constraints imposed on Zen Architects' North Carlton Green House project, to propose a roof in the shape of a palm frond was nothing short of a stroke of genius.

This is a small site, but there are giant moves being made in it. The project rises triumphantly within accumulated constraints: the need to collect rainwater and to catch north light on a narrow block, along with regulations on neighbourhood character, private open space minimums, site coverage maximums, overshadowing and overlooking. The house's curving roof bends and flexes to take on several issues at once, whilst adding a non-functional, expressive, and sculptural element: the form of a palm tree branch. It's as if you could look at the site, take in its maze of constraints, and see that the only structure in which to work just happens to be the shape of a palm frond. In Tokyo, the planning envelope is frequently what determines the external shape of new buildings, producing an architectural style of chamfers and voids – aesthetics via planning code. Here, where we could have had a built version of the ResCode envelope, we have instead a palm frond.

Even if there were no invisible but hard-edged boundaries for the frond to scrape up against – say, if we imagine the building was located in an open field somewhere – there is something undeniably elegant about the shape, something that makes visual sense. The particular curve of a palm frond has an innate structural logic, a springiness that is translated and frozen into the building. It's not just a visual thing – the curve feels right, its structural logic seems sound. If there were no old palm tree in the backyard, would it have been designed differently?

Curves can absorb multiple inputs. The roof of the North Carlton Green House is not a simple extrusion like a barrel vault. It curves down towards the front of the site, ducking its head so it isn't seen from the street. The architects have also employed curves in the floor profile of the mezzanine. While not responding to the palm trees this time, curves make good sense when handling small spaces. Rather than having a straight line divide the space into a single narrow void with a walkway, the same floor area gets distributed unevenly in a sweeping line that creates an enlarged impression of space. The internal balustrade of the mezzanine continues outside to become a tall privacy screen, a transition also smoothed by a curve. The vertical timber battens are cut to length in a swaying profile that seamlessly responds to requirements that vary along its expanse.



PREVIOUS PAGE: The new addition occupies more of the site, but with the institution of a rooftop garden, also increases the amount of usable outdoor space. **THESE PAGES, RIGHT:** The sweeping roof form was inspired by the simple elegance of a palm frond. **FAR RIGHT:** A local graffiti artist was commissioned to paint a design on the pavers in the courtyard.



Heritage rules in the area dictate that any upstairs addition has to be set back the length of the first two rooms. This ensures the preservation of the nineteenth century streetscape, with its desirable qualities of visual consistency, character and charm. Yet Zen Architects points out that the “renovation of existing housing stock is essential for a sustainable future.” So the front two rooms are preserved – that’s okay – but it leaves the back half of our inner-city suburban sites to make up for their bad climatic design.

Environmentally sustainable design (ESD) fits into the utilitarian side of architecture. It’s one of the functional constraints architects attempt to transcend as they try to push projects into the realm of art. The ESD aspects of a project are never very glamorous. In this house they have been subtly integrated into the whole. One part of ESD is to do with the selection of materials – there are questions of how much energy is embodied in them, where they have travelled from, and so on. This project’s extensive use of timber is inspired by its being a renewable resource. It was harvested from local, sustainably grown plantations and sawn radially to minimize waste. Strawboard, another low-embodied-energy material, lines the party wall and insulates sound from the neighbours as well as preventing heat loss.

A roof garden fed by grey water insulates the ceiling of the new kitchen, and its supporting concrete structure adds thermal mass to stabilize the internal temperature. The concrete slab on the ground floor performs a similar function, storing heat from sunlight that streams through a double-height, north-facing glass wall. This is augmented by a gas-powered hydronic system under the floor. Gas is also used to boost the solar hot water system when the solar panels mounted on the existing, pitched roof don’t receive enough sunlight. Simple passive cooling principles like using the stack effect for natural ventilation have been seamlessly incorporated. The two-storey void space has open-tread stairs, and a timber floor with gaps allows airflow. A pond in front of a low, opening window pre-cools the air being drawn inside. In winter, a fan at ceiling level turns slowly to move warm air downwards.

One of the design’s remarkable achievements is that it enlarges the floor area while providing more garden and more habitable outdoor space. The architects describe this approach as “increasing the local ecological biodiversity.” Greenery enters the interiors as well. A curtain made from bromeliads of the genus *Tillandsia*, which require no earth to grow, filters the north light coming into the living room through a double-height glass wall.

Looking at this project from the street, there is no way of knowing it contains an enhanced ecology, that it is filled with plants and greenery, or that it has courtyards and internal living spaces in different parts of the house so that occupants can move from one to the other according to the passage of the sun. Should we really hide such positive contributions to the livability of our suburbs as the North Carlton Green House from the public realm? I suggest we walk down more back alleyways, and try to absorb some of the contemporary architecture that is participating in a quiet environmental revolution. **TOBY HORROCKS**

PREVIOUS PAGES: Concrete in the floor planes of both levels provides significant thermal mass, assisting in passive climate control. **THIS PAGE AND OPPOSITE:** The balustrade of the internal mezzanine flows mellifluously through the house to become a tall privacy screen for the roof garden.





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PRACTICE PROFILE
 Small practice committed to the innovative and sustainable design of residential, educational and community architecture.

PROJECT TEAM
 Ric Zen, Ben Callery, Shae Parker, Penny Guild

BUILDER
 Concept Build

CONSULTANTS
Engineer
 MR Anderson Engineers
Landscaping
 Fat Elvis Garden Design
Graffiti artist Vexta
Interiors, lighting Zen Architects

PRODUCTS
Roofing Colorbond; R3.5
 Green Stuff insulation batts;
 Air Cell insulation **External walls** Recycled brick; Radcon sustainably harvested timber
Internal walls Stud frame with Ortech strawboard lining
Windows and doors Victorian ash timber frames; Quantum timber stains; double glazing with low-E coating **Flooring** Insulated polished concrete screed on ground floor; Radcon timber on first floor; concrete roof garden with 300 mm of earth **Lighting** Beacon Lighting; Sinseo Design pendants **Kitchen** Fisher & Paykel and Asko appliances; Oliveri sink; Zucchetti mixer tap; 2-pac enamel cabinets, glass splashback **Bathroom** Renovare wall-hung toilet with Water Waver cistern; Carina bath; Vitra Juno washbasin; Gallery tapware; Ital Ceramics tiles **Climate control** Gas hydronic slab heating; Concept ceiling fan **External elements** Boral pavers painted by graffiti artist **Other** Custom grey water recycling system; Waterwall rainwater tanks; Davey pumps; sub-surface irrigation systems

TIME SCHEDULE
Design, documentation
 9 months
Construction 12 months

SITE SIZE
 166 m²

PROJECT COST
 \$365,000

PHOTOGRAPHY
 Emma Cross