

Greening your Victorian-

Heritage and sustainability: you can have it both ways

If there's one architectural style that defines the inner suburbs of Sydney, Melbourne and Adelaide it's the Victorian style. Walking the streets of Paddington or Fitzroy, the tastes and values, aspirations and economies of another time are preserved on every street, from the embellishments of "boom period" facades, to the reassuring regularity of the terrace row.

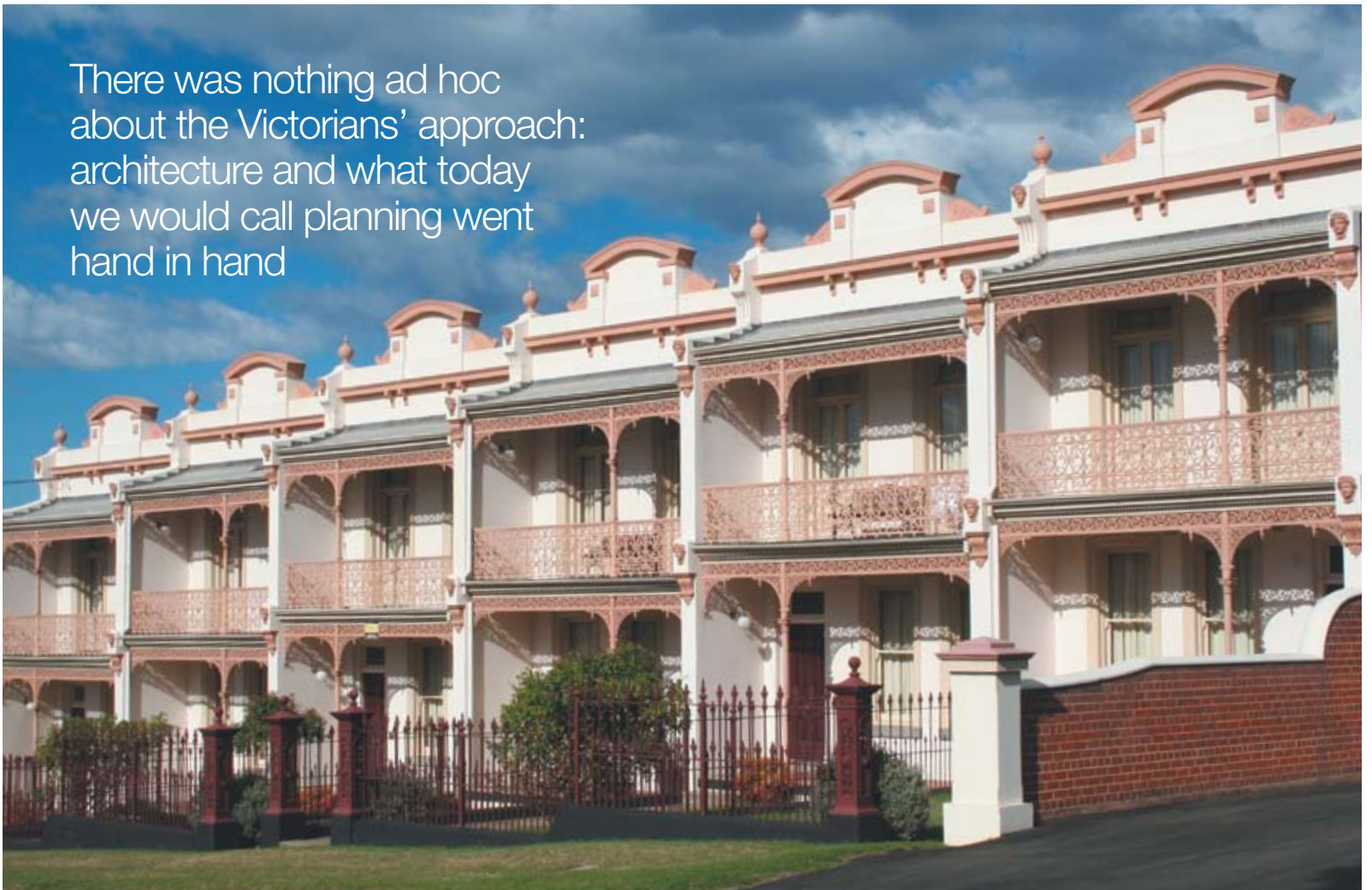
There was nothing ad hoc about the Victorians' approach: architecture and what today we would call planning went hand in hand. That's why a stroll through a Victorian suburb can make a person feel relaxed and harmonious: it's the deep sense of history and place, and the unity of vision.

But the focus on "street architecture" had its downsides. The balcony or veranda, being an admired feature of a house, was always placed at the front: even if it would have made more sense for passive solar purposes to put it on

the back. And the windows of a terrace house always face the front and the back, regardless of orientation. That means that on a street running north-south you can have large windows facing east and west with no eaves, letting in all that blistering summer sun.

So how do you fix these things without betraying your home's Victorian pedigree? *Sanctuary* magazine asked a hand-picked crew of sustainability gurus.

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period home

Draughts

The good news is that many of the most significant things you can do to upgrade your Victorian-period home won't affect its heritage look.

Maurice Beinat of ecoMaster points out: "Almost always the single biggest problem is draught proofing.

"The thing is that even if your home is well insulated, if the wind blows straight through then summer heat will permeate the home and winter heating will be quickly lost."

Wherever you find a gap, you'll find a draught. Ill-fitting doors, window architraves, wall vents and open fireplaces are big offenders. Even decorative ceiling roses can be a problem. In old homes with wooden floors there are typically lots of gaps between the skirting and flooring, particularly after carpets have been removed and floors polished.

With a bit of gap sealant, sealing strips (check out www.raven.com.au), and draught stoppers for the doors you can seal most of those draughts yourself.

Fireplaces

In the latter half of the twentieth century, many Victorian houses had their draughty and notoriously inefficient fireplaces sealed up and plastered over, cast-iron insert and all, as gas heaters found favour over wood fires.

This may have improved thermal efficiency, but it came at a cost to charm and heritage appeal. For all their problems, fireplaces with ornate surrounds are one of the principal features of a Victorian home. **If you wish to keep or restore your fireplace, there are ways to do it energy-efficiently.**

Ninety per cent of heat from a woodburning open fireplace goes up the chimney. Replacing your woodburning fire with a fireplace-fitted gas heater will be more efficient than a wood-burning fire, but a regular flued gas heater will still allow a draught up the flue. It will also burn oxygen from within the home, which may necessitate a wall vent (unventilated rooms with gas heaters are a serious hazard).

Maurice Beinat recommends that "heaters should be fitted with a balance flue, also known as a power flue, which draws the air used for combustion from outside the home. These have no possibility of draught as the combustion chamber is fully isolated from the air within the home."

When they're not being used in winter, open fireplace flues should be sealed. Sealing a fireplace, says Andreas Sederof of Sunpower, "can be as simple as stuffing a hessian bag into the throat of the chimney or (for more control) having a damper fitted into the flue". In summer you should keep your chimneys open, as they can act to vent hot air out of the house.

Windows

The frames on the old double-hung sash windows are a common source of draughts, and their thin glazing is an insulation disaster – but replace them with something modern that's out of character and you could be stripping thousands off your resale value.

It's also important not to underestimate the environmental benefits of retaining your old windows. Replacing old features entails waste – unless you recycle in which case you're merely trusting that someone else will adopt the "inefficient" technology you discarded. It also means installing a new window, whose embodied energy, the energy invested in its manufacture, transport etc, will offset its efficiencies for some time.


And old windows are not as inefficient as all that. As Paul Downton, principal architect of Ecopolis Architects, points out, **"old sash windows provide very good controllable ventilation options that other windows do not"**.

Sash windows are notoriously tricky to upgrade. There's no point even looking at glazing solutions until you've sealed your window's draughts, and while there are a range of draught-sealing solutions for sash windows opinions vary as to the effectiveness and appearance of each of them. ecoMaster make their own custom treatments, as do companies like Classic Windows and Sash Window Specialist.

Assuming you can seal your window against draughts, glazing treatments range from higher performing single glazing, to solar films, to discrete double-glazing substitutes such as Magnetite and Clear Comfort (www.clearcomfort.com.au).

And yes, it is even possible to retrofit double glazing in old windows. "It's a bit technical," says Dick Clarke of Envirotecure, "but any competent carpenter can do it".





Using insulating paint will help prevent heat moving through your brickwork

Shading

When the heat is on and it's streaming through your windows, you must think past the glazing. **“External shading is the only way to significantly improve summer comfort,”** advises Andreas Sederof.



The Victorians made extensive use of shutters, which on east and west-facing walls are still a fantastic investment.

In many Victorian-period houses, when the shutters fell into disrepair they were not replaced. Recesses on the window frame show where they were set. If you want to stay true to the Victorian style, the old shutters were two leaves fitted with louvres. They were also painted (in heritage colours, of course!).

Awnings, pergolas and deciduous plantings can be used to shade the high summer sun on north-facing windows while still permitting in the low winter sun. The Victorians also used canvas awnings on balconies and verandas.

Curtains

Another way to reduce winter heat loss – and some summer heat gain – through your old windows is curtains. “Given the difficulties of installing double glazing, curtains and pelmets can be very useful,” says Paul Downton.

Adds Maurice Beinat: “Full length drapes are best as they usually extend well past the edge of the window unit. If you don't like pelmets it is an easy task to install invisible pelmets” – pearl-coloured Perspex that performs the same function as the bulky box pelmet.

The downside to curtains is that they cut out daylight. And proper heavy curtains can be very expensive.

Insulation

Insulation is frequently absent from Victorian homes, and installing it should be one of your first tasks (for rebate information, see www.environment.gov.au/energyefficiency/insulation-homeowner.html). Andreas Sederof recommends a rating of R5 to R6 for roofs. But if you do install roof insulation, don't undo all your good work with unsuitable lighting.

Belonging firmly in the category of offending non-Victorian additions is halogen downlights.

Wildly inefficient, they create so much heat you have to cut holes in your insulation around them because of fire risk. Explains Graham Hunt, “if you put six or eight of these in a room, which often happens, then you have six or eight small ‘chimneys’ all losing heat out of the room. It is much better and more in keeping with the period to use ceiling pendant lamps, wall lights or floor and table lamps.”

Insulating floors in Victorian homes can be problematic. Underfloor insulation products such as Foil Board and Air-Cell are very effective, providing you can wriggle under the floor. But if underfloor access is limited, it may be necessary to lift the floorboards to install the insulation. That's a degree of trouble and expense that many will elect to skip. The Alternative Technology Association's Adam Maxey says “these floors were designed to be carpeted and what happens is everyone rips out the old carpets and exposes these floorboards, polishes them up and then shivers in winter. The insulation was the carpet, so to keep to period, put back the carpet!” For those loath to give up polished timber, a nice big rug is still much better than nothing.



The round vent to the roof space and gabled porch vent show that the Victorians could do great passive design – when they wanted to

Paul F Downton

Exterior treatments and plantings

When it comes to insulating walls, look to the outside.

The Victorian clay brick has good thermal mass, which means it stores heat or stays cool for long periods. What that means is that when you have long days of summer sun or winter cold, your walls will store the heat or cold and move it from the outside to the inside of your home.

If your exterior walls are painted, says Stuart McQuire of Green Makeover, and they're heating up in the summer, "paint them with an insulating paint".

Using insulating paint, or a non-toxic and readily available additive such as Thermilate, will help prevent heat moving through your brickwork. This goes for interior walls, too. And on sun-exposed exterior walls, remember to use light colours. Plain old white paint has excellent reflective qualities.

If exterior walls are unpainted, don't paint them! You will take your home's period authenticity a giant step backward, and there is no way to remove the paint without huge expense and the likelihood of further damaging your walls.

Says Paul Downton: "One option is to place a vertical trellis against that wall and grow plants that are happy to climb across it. The plants don't need to be deciduous, as they offer some insulation value (about R1.0) against heat loss in winter as well as protection from summer sun.

The trellis can have shade cloth on it initially until the vegetation takes over. The trellis should be about 75 to 100 mm from the wall surface to allow an air gap."

If you plan to grow a creeper directly onto the wall, the best option by far, advises Simon Collings of Fitzroy Nursery, is Boston ivy: "it's the least destructive of walls, can take sun or shade, and colours up beautifully in autumn. It sits out from the wall and gives you a good thermal air barrier, and is easy to maintain, as long as you keep it out of your gutters."

At all costs, he says, avoid English ivy, "which really is just a noxious, invasive weed".

Roofs are an easy fix – just do as the Victorians (mostly) did and go with corrugated iron, or its latter-day equivalent Zinalume. "You can't get a more practical material," says Andreas Sederof. "So long as the colour is light. Dark colours will raise the roof temperature by as much as five to 10 degrees."

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Consultants

Adam Maxey works for the Alternative Technology Association (ATA), the publisher of *Sanctuary* magazine. ATA Sustainability Consultants can advise on all aspects of sustainable house design and practice. www.ata.org.au/news/ata-sustainability-consulting-service

Maurice Beinat is Chief Technical Officer of ecoMaster, a sustainability assessment and retrofit firm based in Gisborne, a historical gold-rush town northwest of Melbourne. www.ecomaster.com.au

Dick Clarke is Director of Envirotecture, Sydney-based building designers specialising in sustainable buildings. www.envirotecture.com.au

Simon Collings is the owner of Fitzroy Nursery, a local landmark in inner-city Victorian-period Fitzroy. www.fitzroynursery.com.au

Paul F Downton is Principal Architect and Urban Ecologist for Adelaide's Ecopolis Architects. He was also the editor and a major contributor to the Australian Government's *Your Home Technical Manual*. <http://ecopolis.com.au>; www.yourhome.gov.au

Graham Hunt is an architect based in Sydney specialising in sustainable design, environmental ratings and home sustainability assessments. greyhound@idx.com.au

Stuart McQuire is an environmental scientist who runs Green Makeover, a sustainability assessment firm based in Melbourne. He is the author of *Water Not Down the Drain*, published by the ATA. www.greenmakeover.com.au; www.notdownthedrain.org.au

Andreas Sederof is a Director of Sunpower Design, a Melbourne firm specialising in environmentally sustainable building design. www.sunpowerdesign.com.au

Further Reading

How to retrofit double-glazing: *ReNew* magazine, issue 84 (<http://shop.ata.org.au>)