

# Paul Dolphin

## A short guide to building a Sustainable House



# Introduction

My Background

What is sustainability

Livability

How you achieve a sustainable house

Order of priority

Conclusion

More people in Australia die of excess cold in their homes than they do in Sweden.

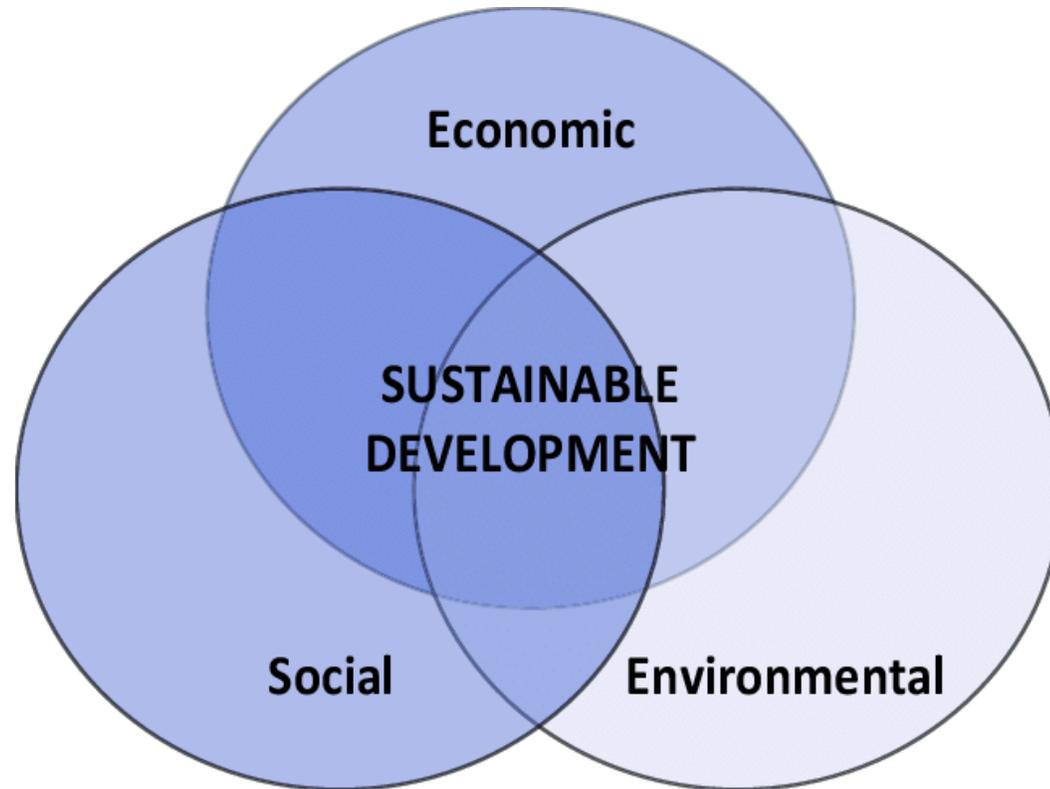
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# Sustainability = efficiency

**Brundtland** Report: "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs."



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# My Background

Interested in deep eco design

Became a building surveyor

Senior sustainable designer for a housing association with 15,000 dwellings

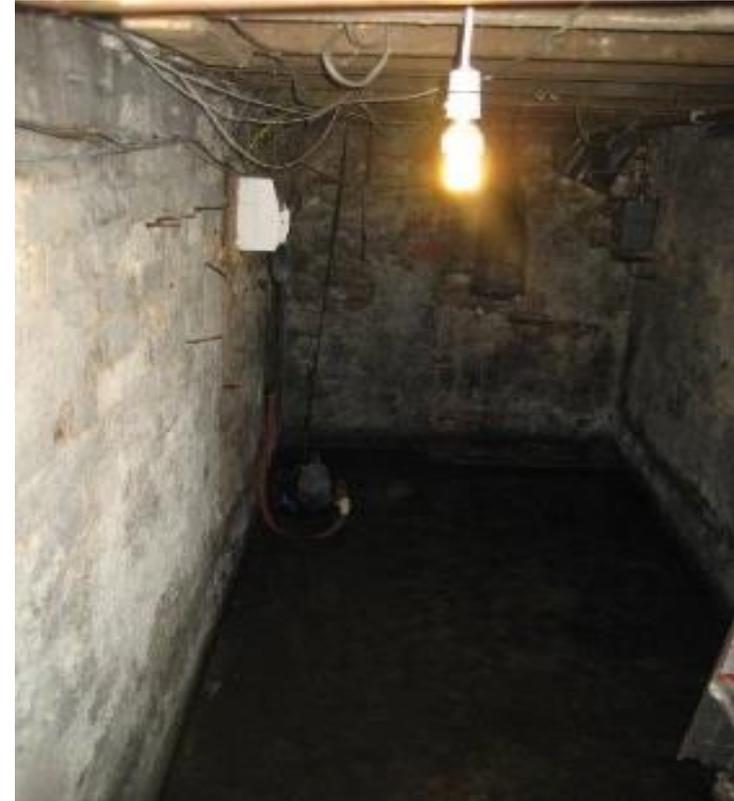
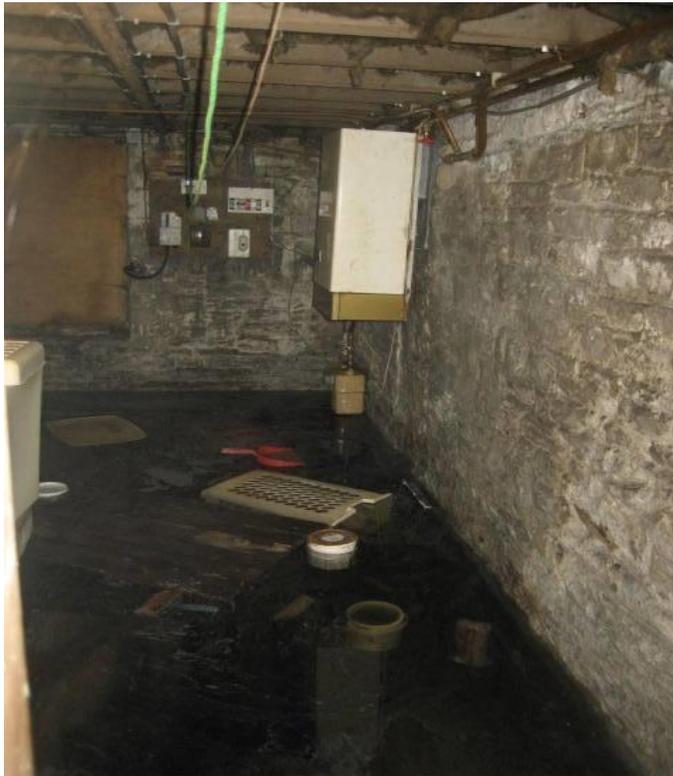
Set up sustainable building design practice with 100s of successful DAs completed

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# Defects usually mean water in the wrong place



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# My philosophy is the eco middle way

Balance all three aspects of sustainability to the clients' needs.

Use conventional material in a sustainable way.

20% of a building's energy is in its construction.

80% is in its running costs.

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# Livability

Cool in Summer.

Warm in Winter.

The building meets the occupants' needs.

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# A sustainable house does not cost more

Put simply all you need is two things:

- A sustainable building designer
- A sustainable builder

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# My order of priority

- 1 Orientation – solar gain/shading
- 2 Slab on ground – thermal mass
- 3 Windows - double glazed to reduce convection
- 4 Roof insulation
- 5 Wall insulation/construction
- 6 Water Heating
- 7 Solar PV
- 8 Space heating

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# 1. Orientation – solar gain/shading



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# 2. Slab on ground – thermal mass

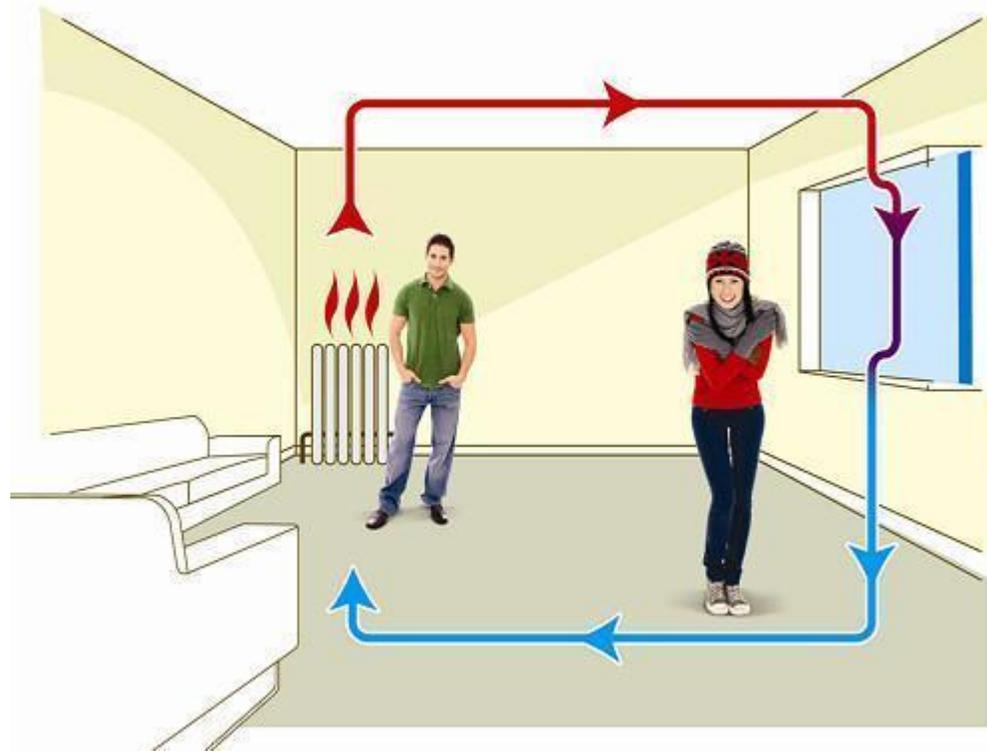


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# 3. Windows - double glazed to reduce convection



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# 4. Roof insulation

## 5. wall insulation/construction



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6. Water Heating
7. Solar PV
8. Space heating



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# Rebuild or renovate?

- Does it have good bones/ orientation?
- Embodied energy.
- Liveability- the outcome is often not great.
- More materials used/wasted with a rebuild.
- Would you put a new engine in a 1960 Holden? Or try to put the guts of a smart phone in an old telephone?



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# Conclusion

Remember the three aspects of sustainability:

- Consider liveability
- Remember the middle way
- Think about the order of importance

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