Merging teaching and research.

How to use your teaching to increase your research outputs.

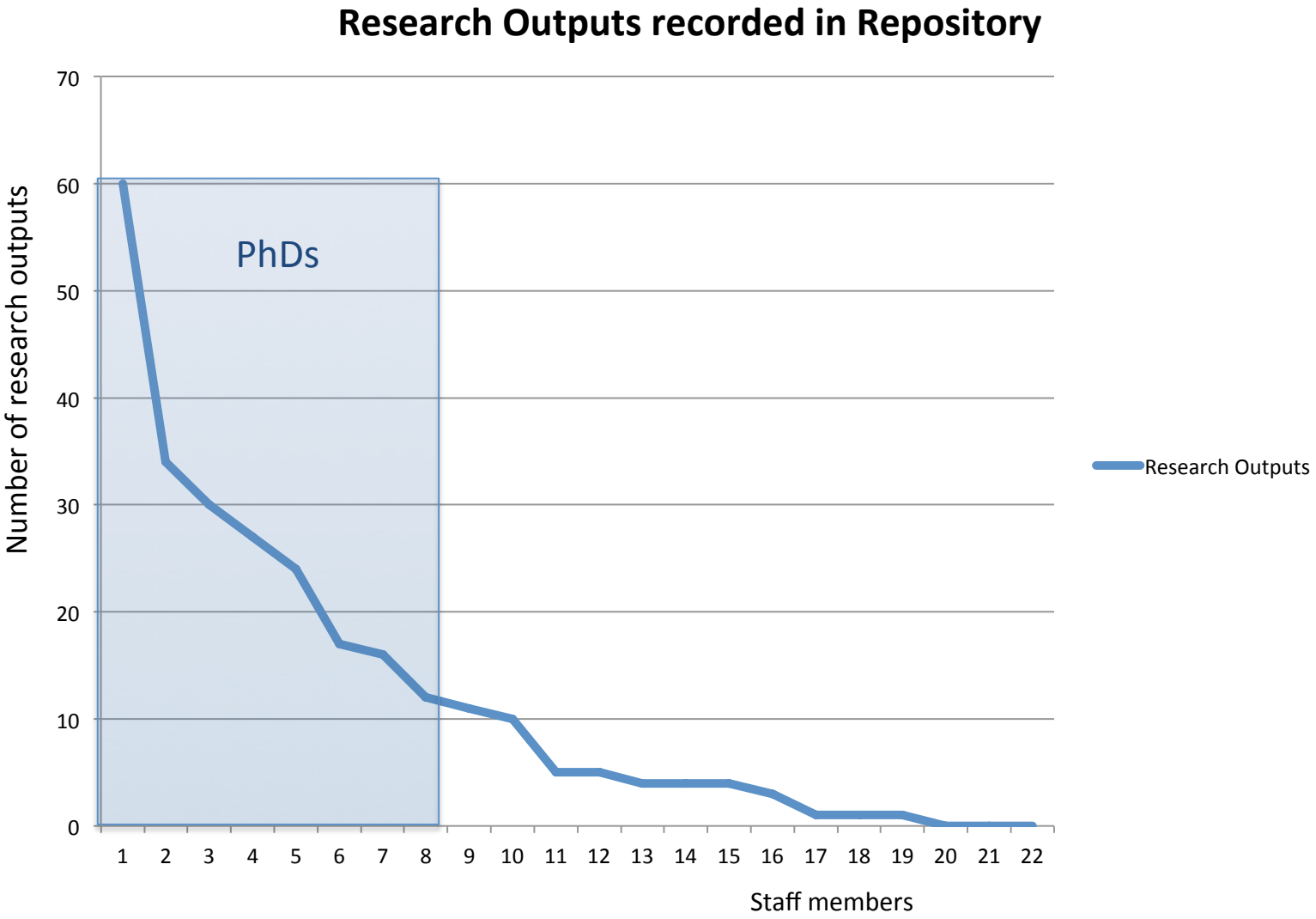
Hugh Byrd

We all need research outputs for:

- Promotion,
- job applications,
- peer esteem,
- attracting good students,
- evidence for attracting funding

The University of Lincoln Repository extends the definition of 'research outputs' to:

Artefacts
Articles
Books
Book Sections
Conference Items
Monographs
Projects
Exhibition
Reviews
Reports
Thesis
Image
Video



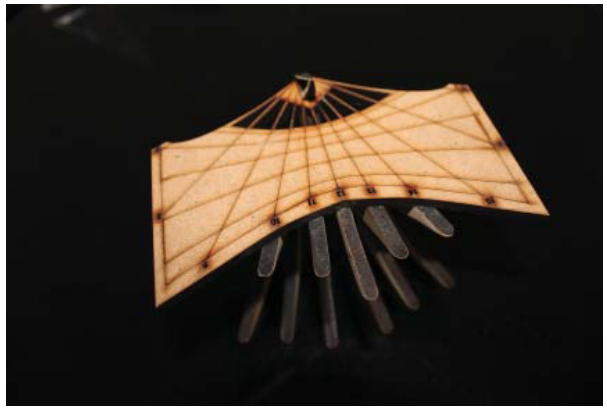
Number of research outputs for full-time staff members in Architecture

Four case studies of research outputs that started from teaching

- Sundials (monograph)
- Sexy and dangerous (article)
- Solar potential (conference paper,article and book)
- Design thinking across educational domains (conference paper & article)





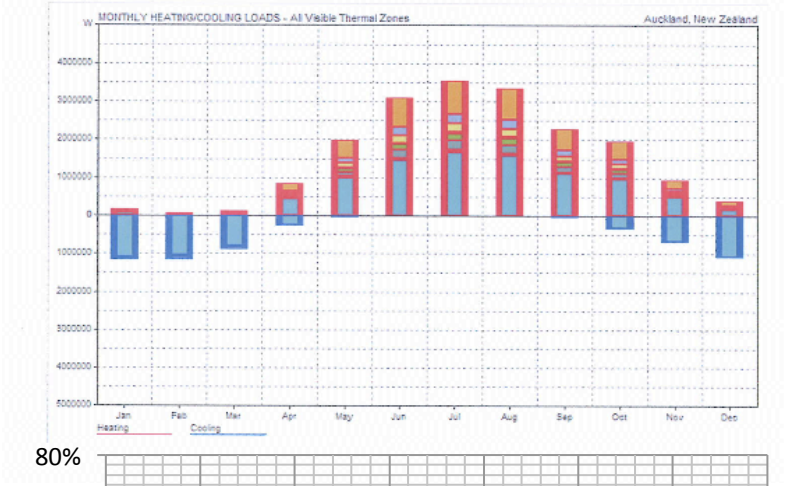



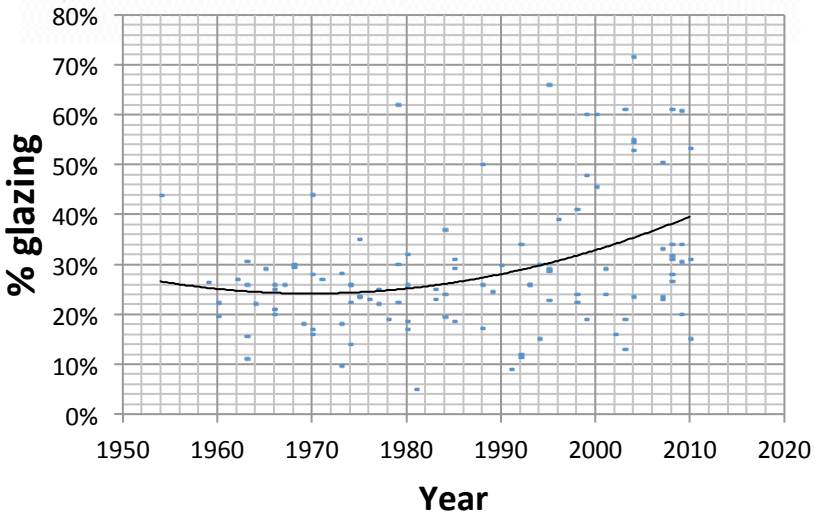


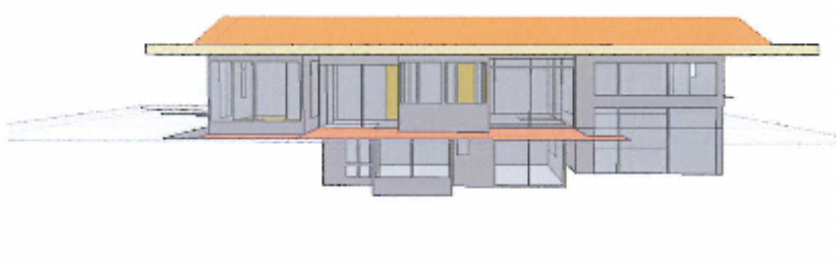
Byrd, Hugh (2012) Celebrating sundials. orking Paper. Transforming Cities, Auck nd. ISBN 978-0-9922509-2-8

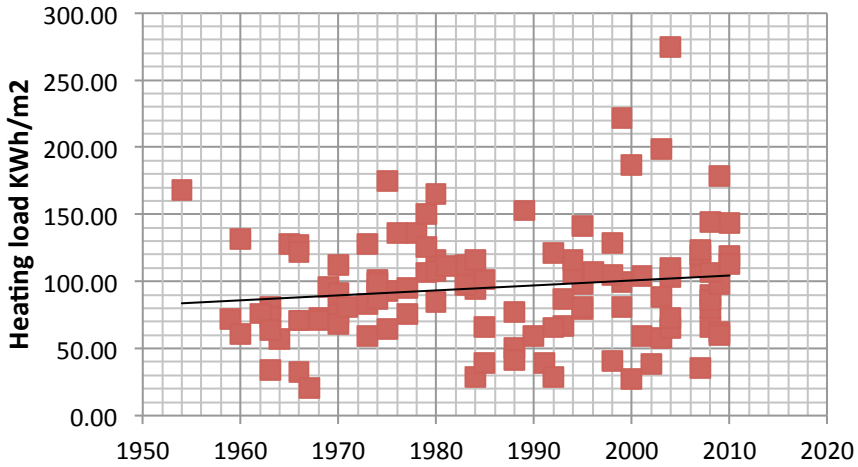
Modeling and simulation

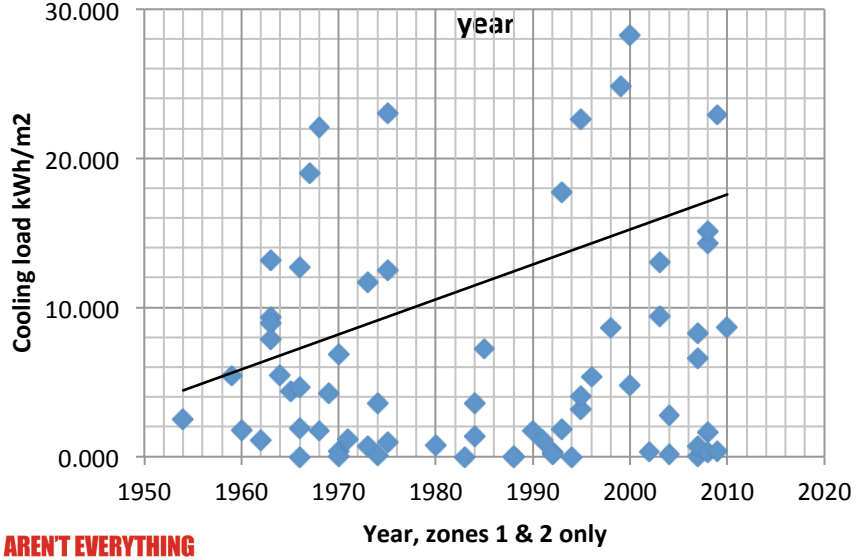
Sexy and dangerous

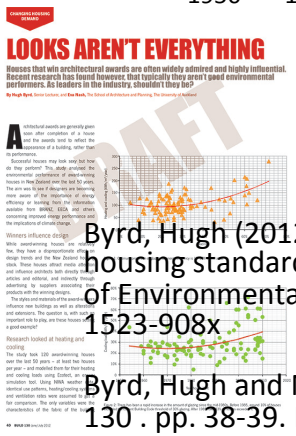











LOOKS AREN'T EVERYTHING

Houses that win architectural awards are often widely admired and highly influential. Recent research has found however, that typically they aren't good environmental performers. As leaders in the industry, shouldn't they be?

DRAFT

25% increase in heating load
500% increase in cooling load
over 50 years

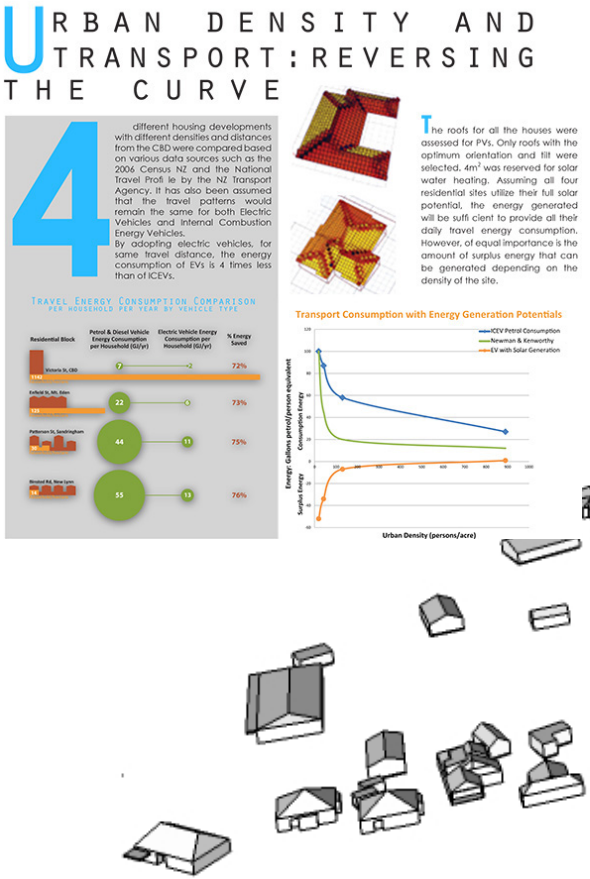
Byrd, Hugh (2012) The case for policy changes in New Zealand housing standards due to cooling and climate change. Journal of Environmental Policy & Planning, 14 (4). pp. 360-370. ISSN 1523-908x

Byrd, Hugh and Nash, Eva (2012) Looks aren't everything. Build, 130 . pp. 38-39. ISSN 0110-4381

Urban engineering

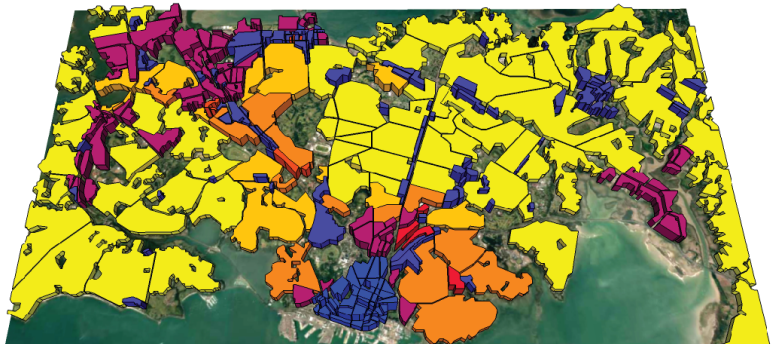
The Solar Potential of Auckland

Cross-section through the City from CBD out to the suburbs; 3 million sqm, 7 meshblocks.

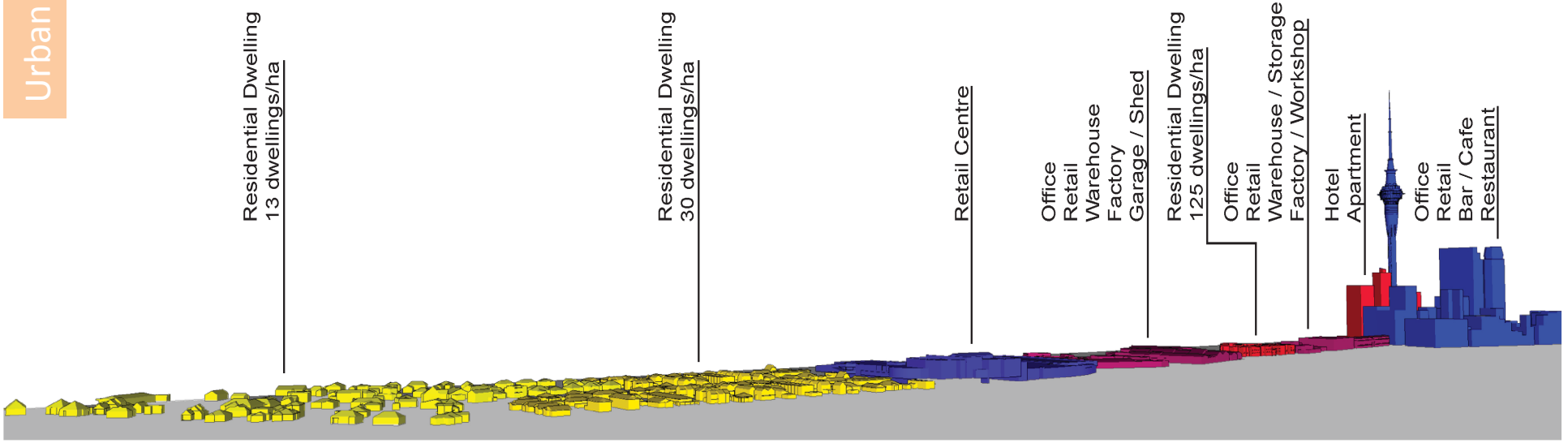


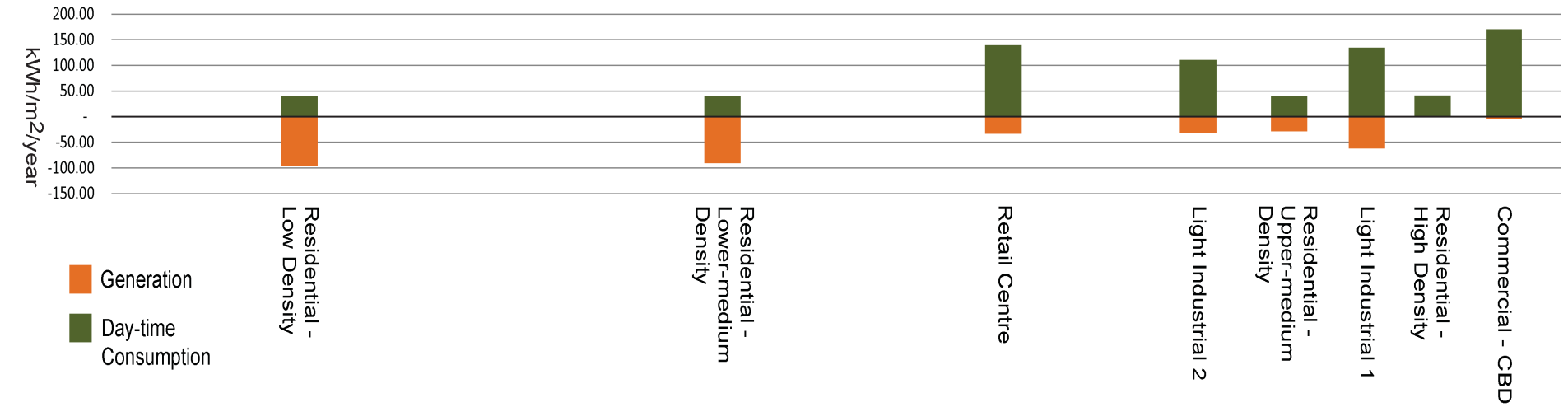
Byrd, Hugh and Ho, Anna and Sharp, Basil and Kumar-Nair, Nirmal (2013) Measuring the solar potential of a city and its implications for energy policy. Journal of Energy Policy, 61 . pp. 944-952. ISSN 0301-4215

Urban engineering



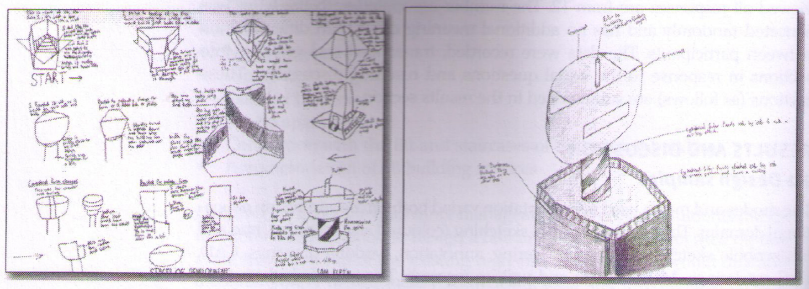
Comparing the potential energy generated from PVs with the energy consumed by buildings.





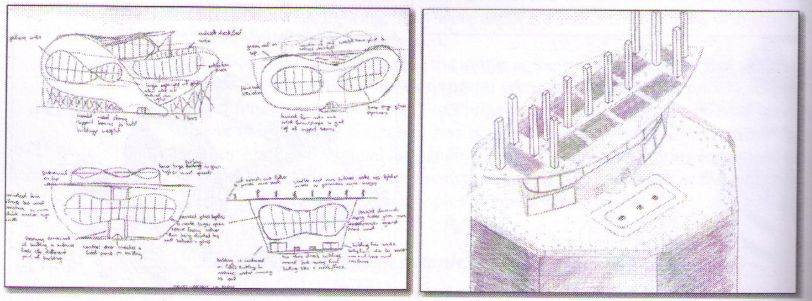
Cusens, Demelza & Byrd, Hugh (2014) An exploration of foundational design thinking across educational domains. Art, Design & Communication in Higher Education 12:2, pp229-245, ISSN 1474-273x, DOI: 10.1386/adch.12.2.229_1

S3



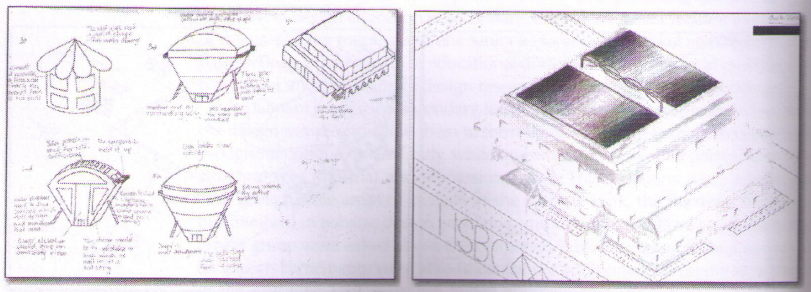
- Initial form derived from participants' understanding of a house shape and then developed with rigorous attention to functionality
- Interior space and overall uses mathematical systems.

S4



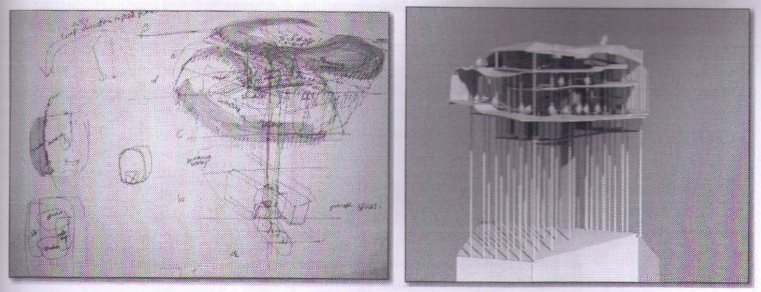
- Initial form derived from the shape of a surfboard
- Form has guided and helped to develop the integration of functional aspects
- Interior spaces have been laid out using mathematical systems.

S5



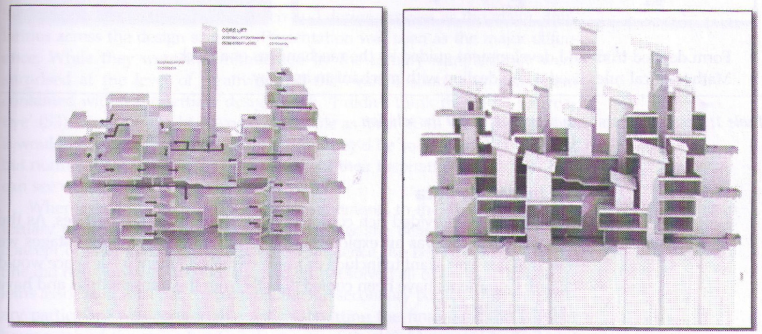
- Form underwent many developments before a direction was selected
- Final form influenced by green architecture and mathematics (box slid off axis)
- Interior space arranged using symmetry. Functionality drove development.

T1



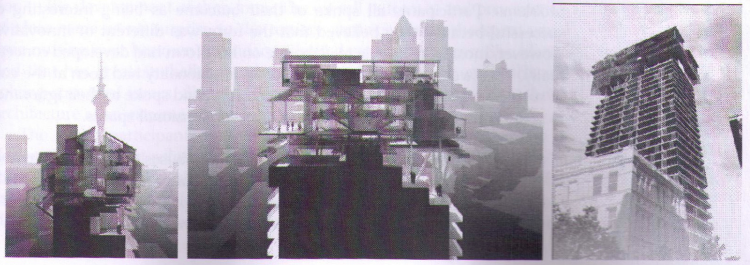
- Form derived from the Mobius loop (mathematical concept)
- This concept drove development.

T2



- Form inspired by Pakistan winder catchers and the concept of traditional, low-tech sustainability
- Functional aspects apparent but not as important or fully resolved.

T3



(Continued)

Conclusions:

- Teaching autonomy is essential to generate creative ideas for projects

- For all teaching courses, consider: ‘what research outputs can I achieve’

- Use students effectively: ‘Student as producer’ leads to staff as producer