Current Built Environment research at Victoria University of Wellington
School of Architecture Research Streams

- Settling our Regional Landscape
- Ecologies Lab: Urbanism, Infrastructure, Housing, Life
- Parametric Design and Digital Agency
- Responsive Environments & Robotics
- Housing and Public Infrastructure
- Contemporary workplaces / Corporate Spheres
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Reflections of the Future

Building Technologies and Material

People and Designed Environments

Theory and History
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Fabricio Chicca
Building Science Program Director
School of Architecture Research Streams

Reflections of the Future

- Re-appropriating waste materials
- Re-working project management techniques to foster self-build and incremental build
- Changing work processes to suit resources
- Using BIM as an interactive community tool
- Communal energy production
- New forms of communal food production and distribution
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Reflections of the Future

- Regenerative urban design
- Ecosystem services and urban design
- Biomimicry and ecology
- Climate change and biodiversity loss in relation to the built environment
- Biophilia and wellbeing
- Social justice issues in relation to architectural design
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People and Designed Environments / Housing and Public Infrastructure

- Retrofitting Thermal Mass into New Zealand Houses:
  - What are the potential benefits?

Aiming to understand the benefit to cost characteristics of thermal mass introduced into timber framed houses
Life Cycle Cost Comparisons: Precast concrete claddings and lightweight cladding systems

Aiming to understand the benefit to cost characteristics of precast concrete cladding systems in New Zealand
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History and Theory

History of the technology of NZ House
- Exploring origins from sub-floor to roof
  - Hollow Concrete Blocks 1904-1910 & beyond
  - Changes in construction & structure

- Thermal performance of buildings (historic & current)
  - Building science & building Warrant of Fitness

- Common failures in NZ houses

- Building pathology based on 70 house inspections

- Hempcrete (visiting Czech student)

- Water & energy use in offices (HEEP & BEES)
  - Improving understanding of end-uses
  - Developing tools to assist occupants/owners
The Performance of Wellington’s Green Star Rated Buildings

- Research project regarding performance, following previous Summer Research 2012/13
- Nine selected Green Star Office Design rated buildings in the Wellington Region, names are confidential,
- Focus on Energy and Water Consumption.
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Reflections of the Future / People and Designed Environments

- Energy Efficiency vs Energy Conservation
  - Energy Efficiency and Rebound Effects
- Does Energy Efficiency save energy?
- Life Cycle Analysis
- Embodied Energy of New Buildings vs Retrofitting

![Graph showing comparison of Wellington Green Star Base Building Energy Consumption Predictions with Actual Energy Consumption and the Existing Building Stock.](image)
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Designing Sustainable Regions

• Food Production in Urban Areas

• Public Transportation and food production in urban areas – Share use.
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http://www.victoria.ac.nz/architecture/design-research