



Govt³ & Sustainable Building in New Zealand

by Chris Wood
Ministry for the Environment

Why sustainable buildings?

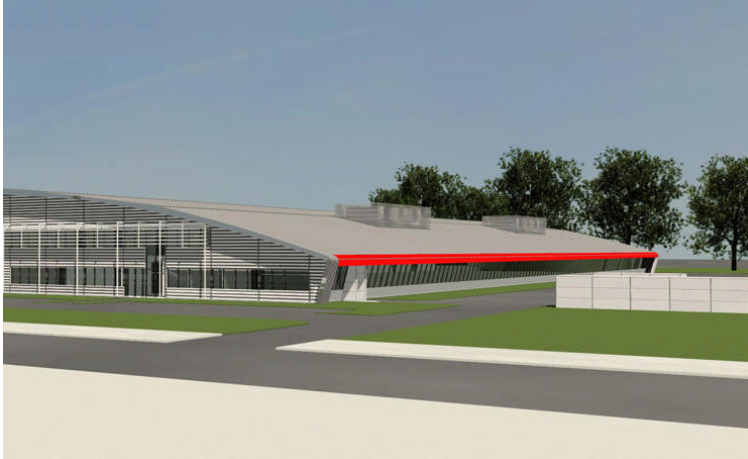
40% of all energy consumption (OECD)
contribute 50% waste

consumes 1/4 of all the wood harvested
in the world

produce 35% of greenhouses gases CO₂
(OECD)

consume 40% of raw materials use
globally (3 billion tons annually)





Why sustainable public buildings?

Government procurement

- Government staff work in buildings (17,480 in Wellington alone)
- Government is a major player in New Zealand construction sector (estimated at >30%)
- Ability to influence the commercial building sector

Govt³

- Formed in 2003
- Cabinet requirement March 2006
 - Ministers remind departments and agencies that it is the government's expectation that all core public service agencies will participate in the Govt³ initiative

Engagement – influence - action

Govt³

47 agencies signed up

Agencies annual procurement budget

25 Billion

Will move into Local Government in the near future

Focuses support in 4 areas:

1. Vehicles
2. Waste
3. Office consumables and equipment
4. **buildings**

What is a sustainable buildings?

*Sustainable Buildings are designed and constructed to the highest environmental standards, (especially in order to **minimise** the use of energy, water and scarce minerals/timber), that are **economic** to run over their whole lifetime and are sufficiently flexible to meet the **needs of future generations**. [Nottinghamshire County Council](#)*

*Buildings are "sustainable" when they are designed, built and operated with low environmental **impacts** (or actually starts to have a **positive** environmental impact) while **enhancing** the health, welfare and quality of life of the people that live and work in them. Variation on that used by British Columbia's [Sustainable Building Centre](#):*



What is a sustainable buildings?

Considers:

Energy efficiency

Water conservation

Indoor environmental quality

Materials

Ecology of the site

Waste minimisation

Transport

My work programme

One on ones with agencies

Build the economic environmental and social case

Case studies

Link people up

Workshops

Rating Tools

RFP & other contract documents

Environment House

40% energy usage –saves \$100,000 annually

26% decrease on 2003/2004 CO2 emissions

Increase in the number of people cycling

22% decrease in waste to landfill

Experiences to share with others



wards sustainable practice
ENVIRONMENTAL. SOCIAL. ECONOMIC.



Statistics NZ

Double glazing

Energy efficient lighting & HVAC systems

Above building code levels of insulation

Central stair case



Albany Junior High School

Solar hot water units of Gym

Some roofs oriented for photovoltaics

Under floor heating



Value Case

Europe leads the way

Australia 2-4% premium

US 2% premium (down from 15% in 5 years)

Productivity

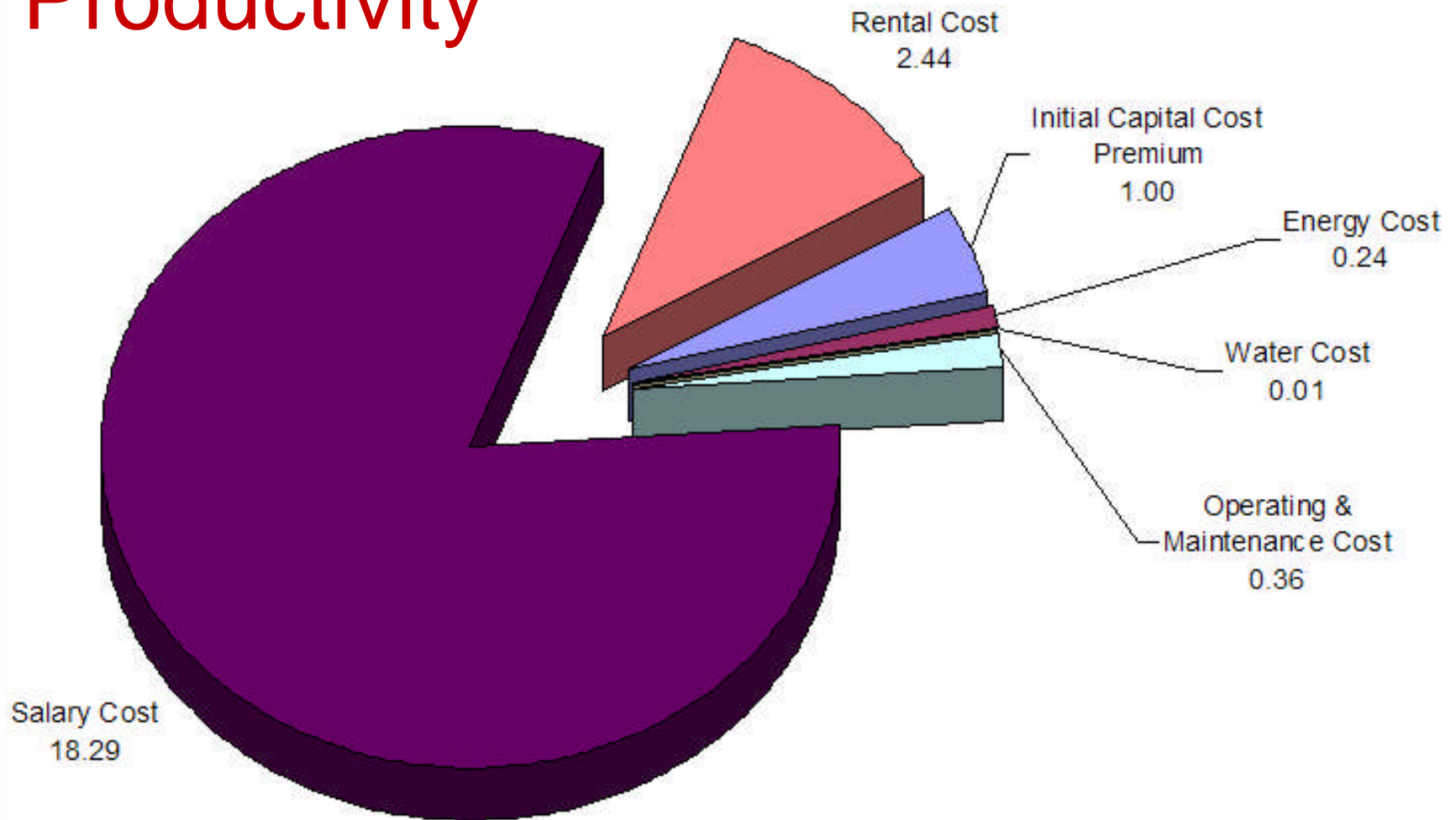
5 - 15% increases in productivity measured internationally

Less sick leave, and absenteeism, increased length of tenure

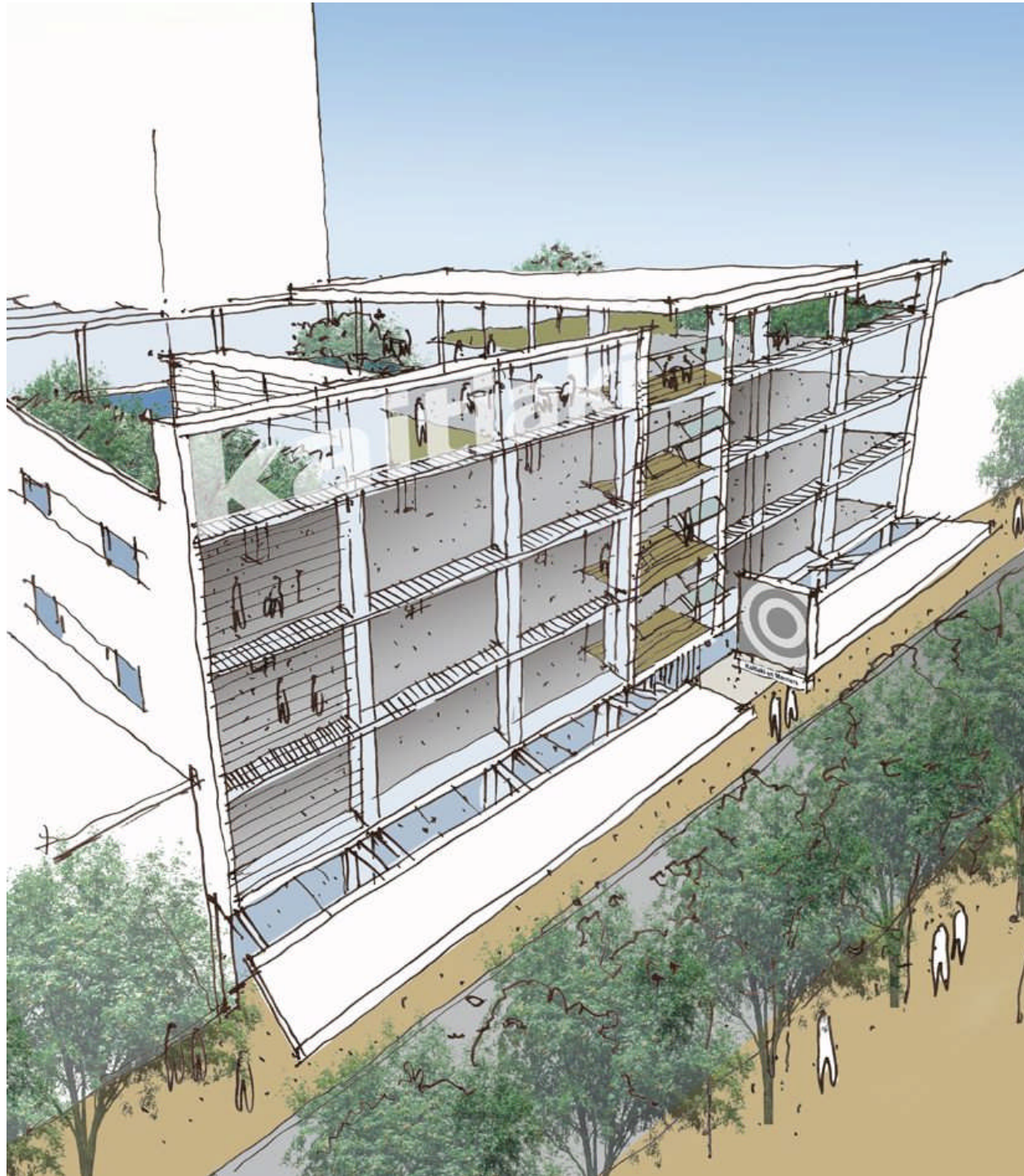
Greater user satisfaction

PROBE studies show NZ 'green buildings' in top 5% in world.

Productivity



Office Building – 20 Year Present Values
NB: Relative to the initial capital cost premium

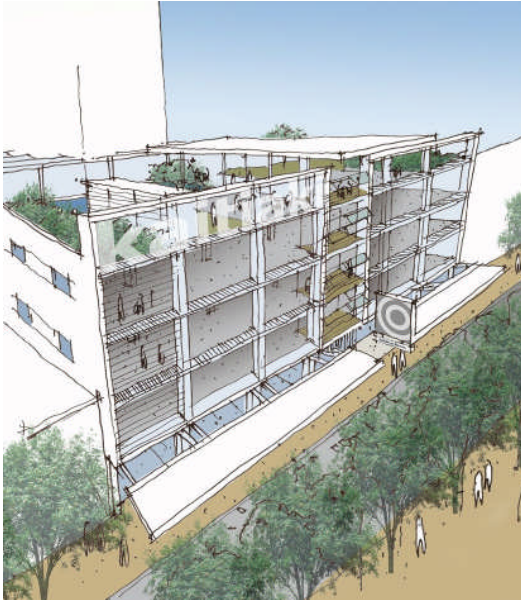


DoC

Head Office



Ministry for the
Environment
Manatū Mō Te Taiao



Atria for natural day-lighting and ventilation

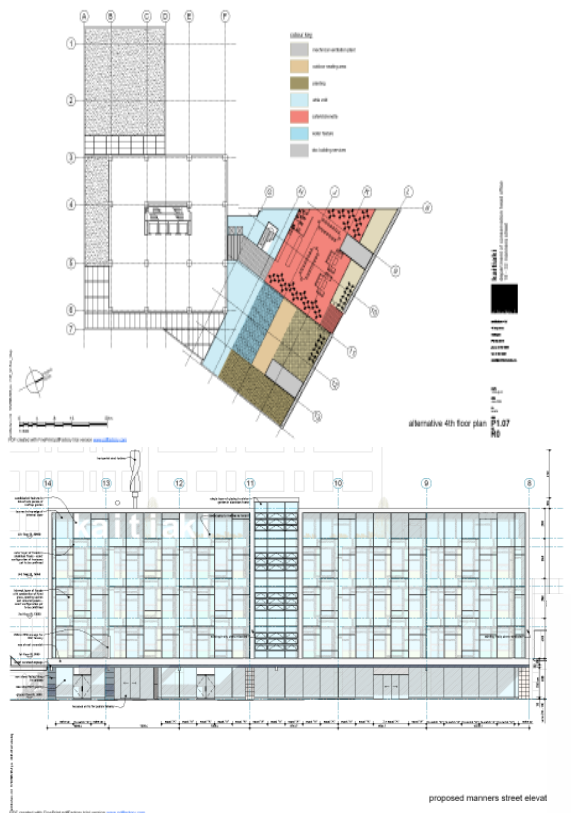
Double skin facades to main street frontages

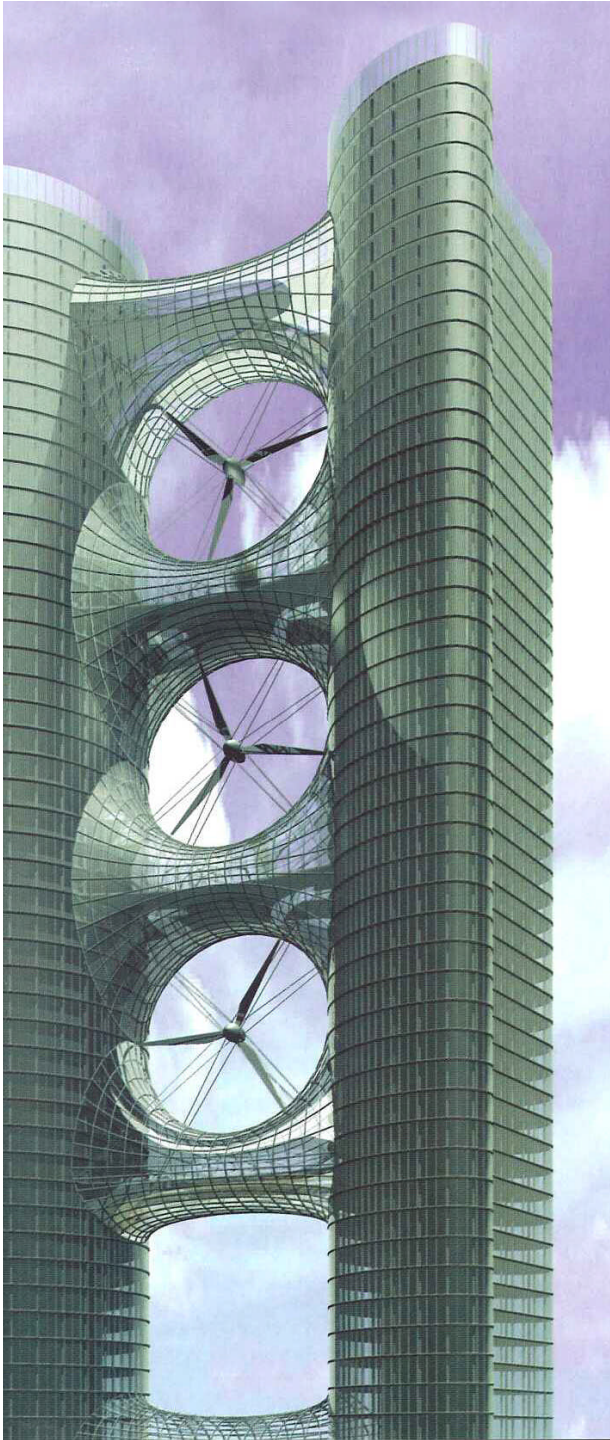
Heating and cooling supply by existing chillers and new heat pumps

Energy efficient lighting and controls

Solar and heat pump hot water system

Energy management system





The Future?

Buildings as net **GENERATORS** of energy

Buildings as **CARBON** sinks

Buildings manufactured from **WASTE**
materials

Buildings which improve **BIODIVERSITY** and
repair ecosystems

Building which **EDUCATE?**

Environmentally restorative design