

Greenstar and Green Buildings

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Overview of Presentation

- New Zealand Green Building Council
- New Zealand Greenstar Rating Tool
- Site 7 Kumutoto (Meridian Building)
- Greenstar Projects

Your comments throughout the presentation are most welcome!



NZGBC Vision

New Zealanders work and live in healthy, efficient, productive and environmentally sustainable buildings, today and into the future...

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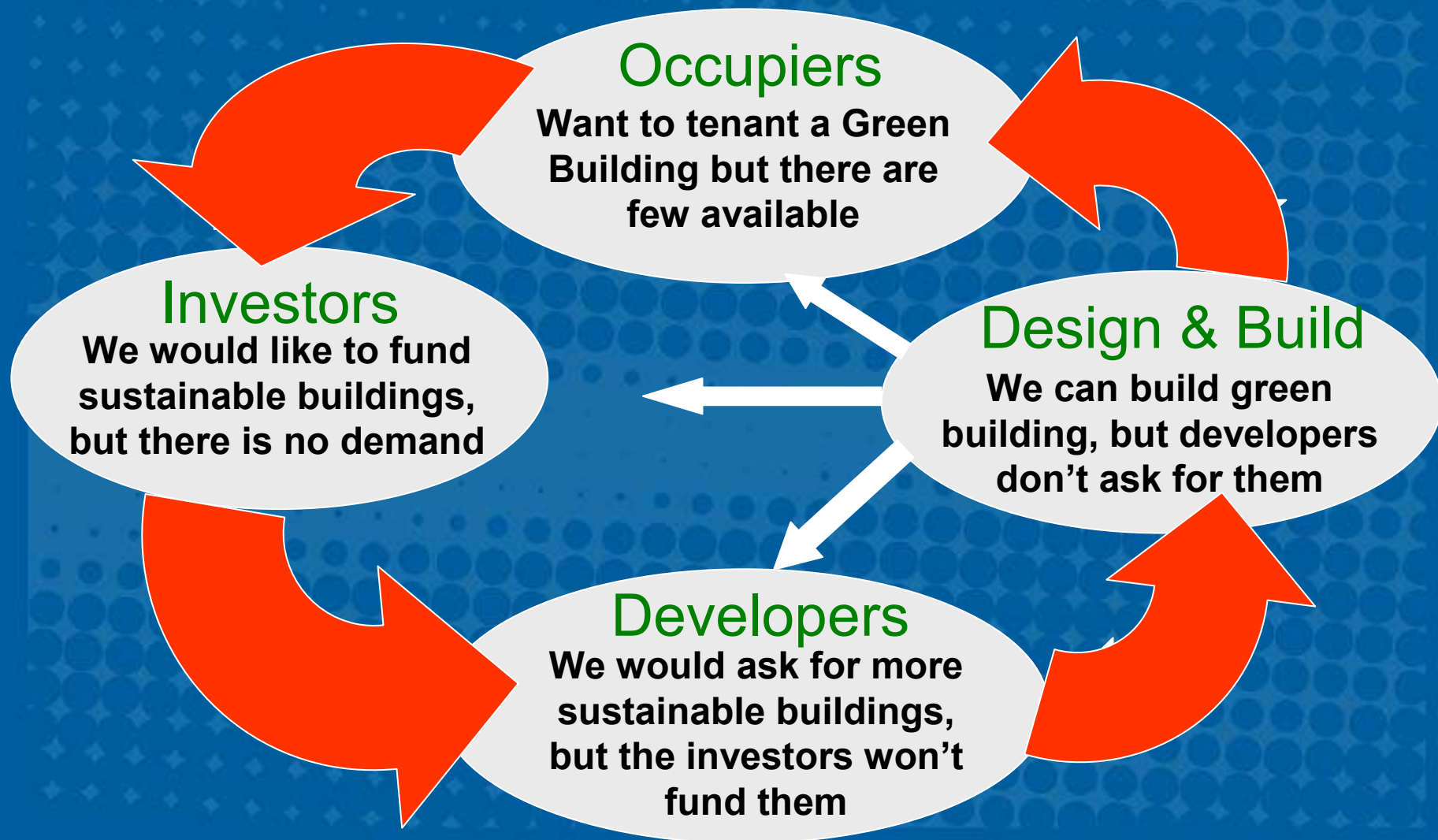
NZGBC Role

The New Zealand Green Building Council's aim is to accelerate the development and adoption of market based Green Building practices.

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The Situation – a vicious circle?



What are NZGBC doing?

- Communication Campaign
- Partnerships with Government
- Resource Development
- Develop Economic Case Studies
- Rating Tool

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Rating Tool development is a priority:

Benefits of a voluntary rating system

- Industry creates the standard for all parts of the building delivery chain
- Clear **process** to achieve best practice
- Way to identify and market the **VALUE**
- Credible third party certification
- Stimulate drivers

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Background

- BREEAM UK
- LEED –USGBC/ GBCCan
- Green Star (Australia)
- Others: BRANZ Green Office, NABERS

Industry Consultation = agreement and understanding

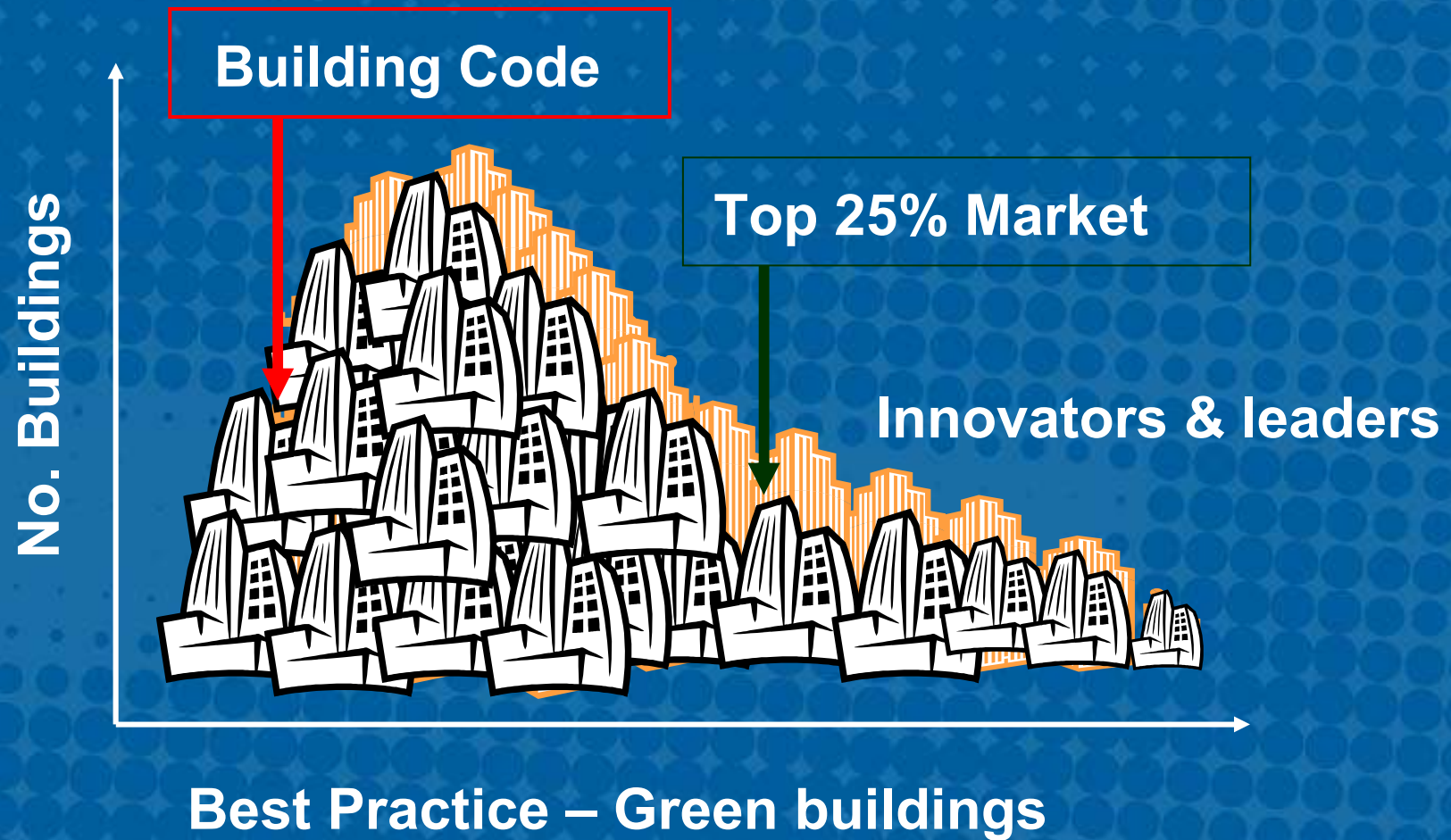
Process for adaptation:

- Expert Sub-committee and industry consultation
- BRANZ consultants
- Pilot released  Launch 4th April

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Green Star NZ



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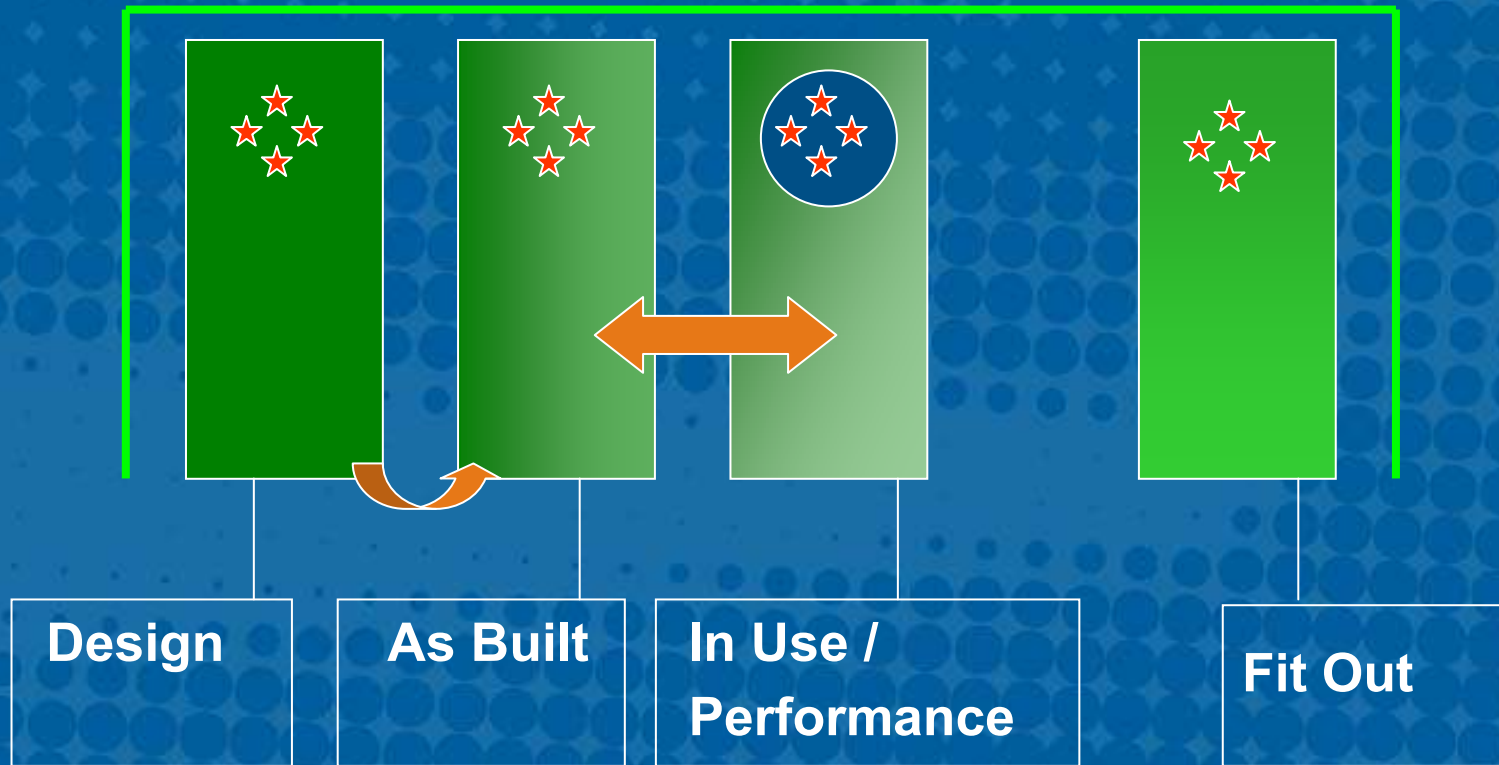


What is Green Star NZ?

It is NZ's rating tool, designed to assess the environmental impact of buildings, encouraging and rewarding initiatives that reduce that impact.

The initial focus of Green Star is on office buildings. Within the 'Office' category there are four tools, each reflecting a different phase in the building lifecycle;

Green Star NZ System



Single Score System

Management systems	10%
Indoor Air Quality	20%
Energy Efficiency	25%
Transport	10%
Water Efficiency	10%
Materials	10%
Land Use and Ecology	10%
Waste/Emissions	5%
Sub-Total	100%
Innovation	5%

Category	Title	Credit No.	Points Available	Points Achieved
Management				
	Green Star Accredited Professional	Man-1	2	0
	Commissioning - Clauses	Man-2	2	0
	Commissioning - Building Tuning	Man-3	1	0
	Commissioning - Commissioning Agent	Man-4	1	0
	Building Users' Guide	Man-5	2	0
	Environmental Management	Man-6	3	0
	Waste Management	Man-7	3	0
	TOTAL		14	0
Indoor Environment Quality				
	Base Ventilation Rates	IEQ-1	Cond. Reqmt	not achieved
	Ventilation Rates	IEQ-2	4	0
	Air Change Effectiveness	IEQ-3	2	0
	Carbon Dioxide Monitoring and Control	IEQ-4	1	0
	Daylight	IEQ-5	3	0
	Daylight Glare Control	IEQ-6	1	0
	High Frequency Ballasts	IEQ-7	1	0
	Electric Lighting Levels	IEQ-8	1	0
	External Views	IEQ-9	2	0
	Thermal Comfort	IEQ-10	3	0
	Individual Comfort Control	IEQ-11	2	0
	Internal Noise Levels	IEQ-12	2	0
	Volatile Organic Compounds	IEQ-13	3	0
	Formaldehyde Minimisation	IEQ-14	1	0
	Tenant Exhaust Riser	IEQ-15	1	0
	TOTAL		27	0
Energy				
	Energy	Ene-1	Cond. Reqmt	not achieved
	Energy Improvement	Ene-2	15	0
	CO2 emissions	Ene-3	10	0
	Electrical Sub-metering	Ene-4	1	0
	Tenancy Sub-metering	Ene-5	1	0
	Office Lighting Power Density	Ene-6	4	0
	Office Lighting Zoning	Ene-7	1	0
	Peak Energy Demand Reduction	Ene-8	2	0
	TOTAL		34	0

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Transport			
Provision of Car Parking	Tra-1	2	0
Small Parking Spaces	Tra-2	1	0
Cyclist Facilities	Tra-3	3	0
Commuting Public Transport	Tra-4	5	0
	TOTAL	11	0
Water			
Occupant Amenity Potable Water Efficiency	Wat-1	5	0
Water Meters	Wat-2	2	0
Landscape Irrigation Water Efficiency	Wat-3	1	0
Cooling Tower Water Consumption	Wat-4	4	0
	TOTAL	12	0
Materials			
Recycling Waste Storage	Mat-1	2	0
Re-use of Façade	Mat-2	2	0
Re-use of Structure	Mat-3	4	0
Shell and Core or Integrated Fitout	Mat-4	3	0
Recycled Content of Concrete	Mat-5	3	0
Recycled Content of Steel	Mat-6	2	0
PVC Minimisation	Mat-7	2	0
Sustainable Timber	Mat-8	2	0
Asbestos check	Mat-9	1	0
Carpet	Mat-10	1	0
Paint	Mat-11	1	0
Thermal insulation	Mat12	1	0
Non-carpet floor coverings	Mat-13	1	0
	TOTAL	25	0

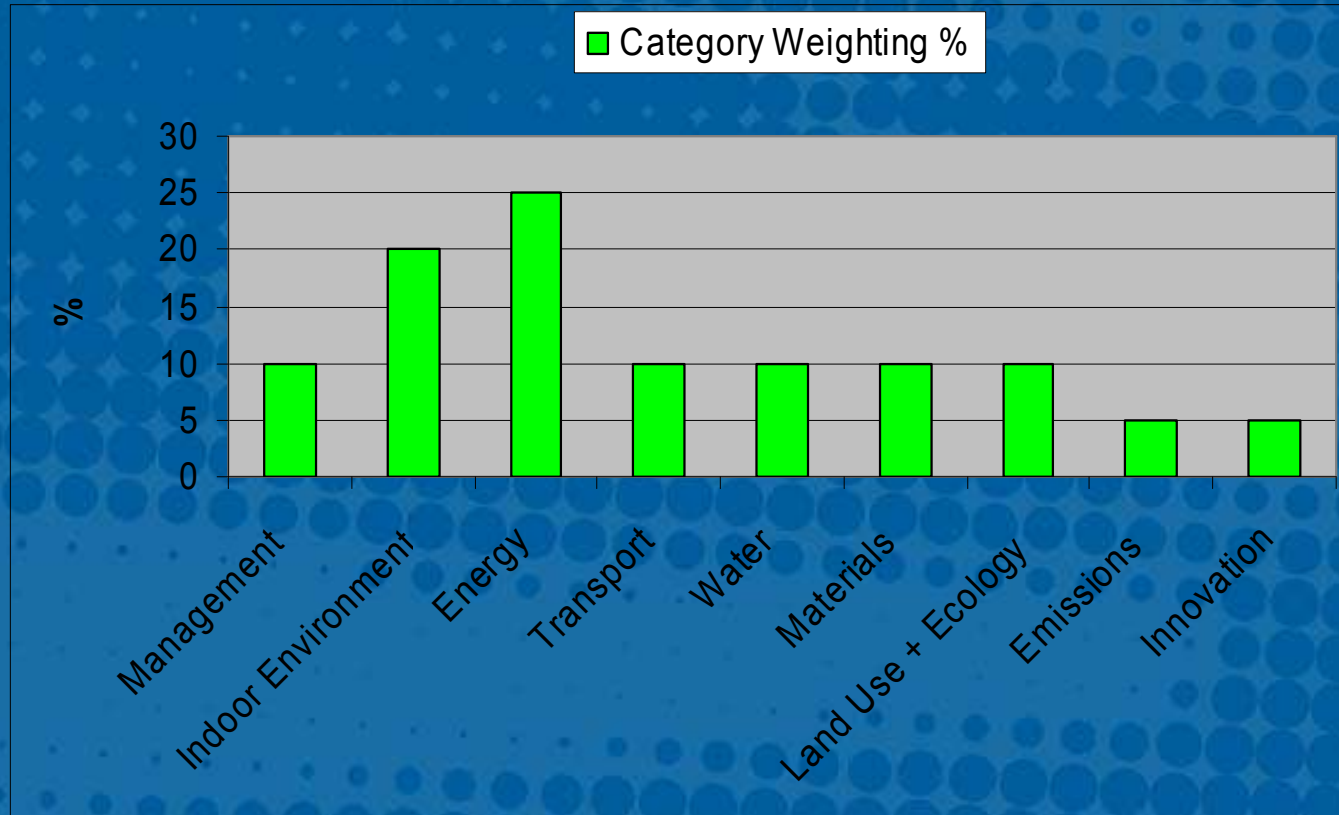
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Land Use & Ecology				
Ecological Value of Site	Eco-1	Cond. Reqmt		no
Re-use of Land	Eco-2	1		0
Reclaimed Contaminated Land	Eco-3	2		0
Change of Ecological Value	Eco-4	4		0
Topsoil and Fill Removal from Site	Eco-5	1		0
	TOTAL	8		0
Emissions				
Refrigerant ODP	Emi-1	1		0
Refrigerant GWP	Emi-2	1		0
Refrigerant Recovery	Emi-3	1		0
Watercourse Pollution	Emi-4	2		0
Reduced Flow to Sewer	Emi-5	4		0
Light Pollution	Emi-6	1		0
Cooling Towers	Emi-7	1		0
Insulant ODP	Emi-8	1		0
	TOTAL	12		0
TOTAL CREDITS		143		0
Innovation				
Innovative Strategies and Technologies	Inn-1	5 points in total for Inn-1,2&3		0
Exceeding Green Star Benchmarks	Inn-2			0
Environmental Design Initiatives	Inn-3			0
	Total	5		0
OVERALL WEIGHTED SCORE:				0
Green Star NZ RATING =		#N/A		

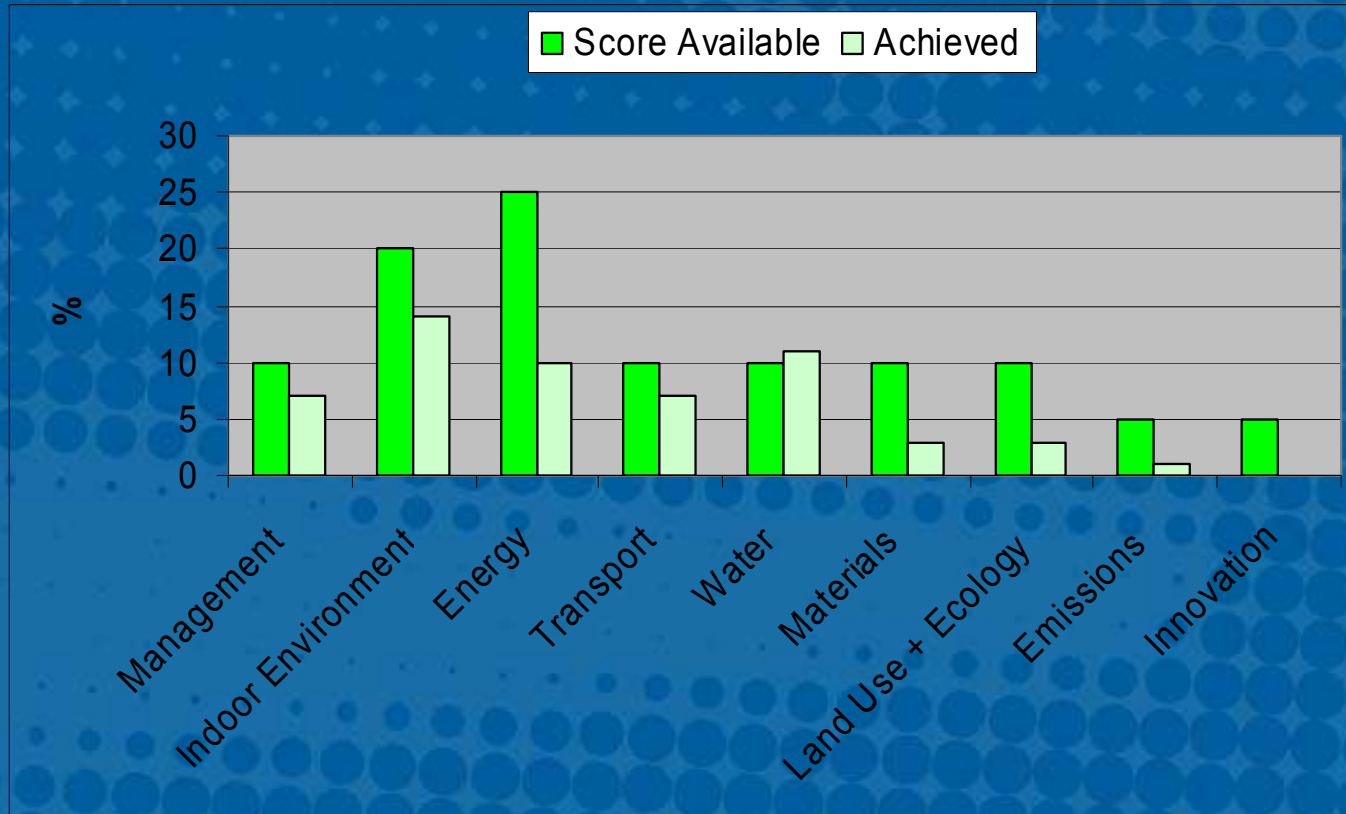
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Green Star NZ Rating

Rating	Score Required	Comment
1 Star	10	No certification
2 Star	20	No certification
3 Star	30	No certification
4 Star	45	Best Practice
5 Star	60	Excellence
6 Star	75	World Leader

Green Star NZ System

- Commercial Office
- Education
- Residential
- Industrial
- Other

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What next?

- Greenstar Training in April
- Workshops and seminars
- Upskill your staff
- Product information = Green Build
- Register your projects

Join the NZGBC!

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A Few Greenstar Buildings



Site 7, Wellington Waterfront

Building Design Principles

Symathetic to, and relate to existing heritage buildings

Public spaces to contribute to the recreational potential, shelter, comfort and social inclusiveness of the waterfront

Incorporate as many environmentally-friendly construction and design principles into the building as possible.

Tenant Aims

60% less energy than comparable building

70% less water than comparable building

Healthy and Productive work environment



ESD Design Approach

Integrated team approach

Whole Building approach

Optimise whole system

‘Front Loaded’

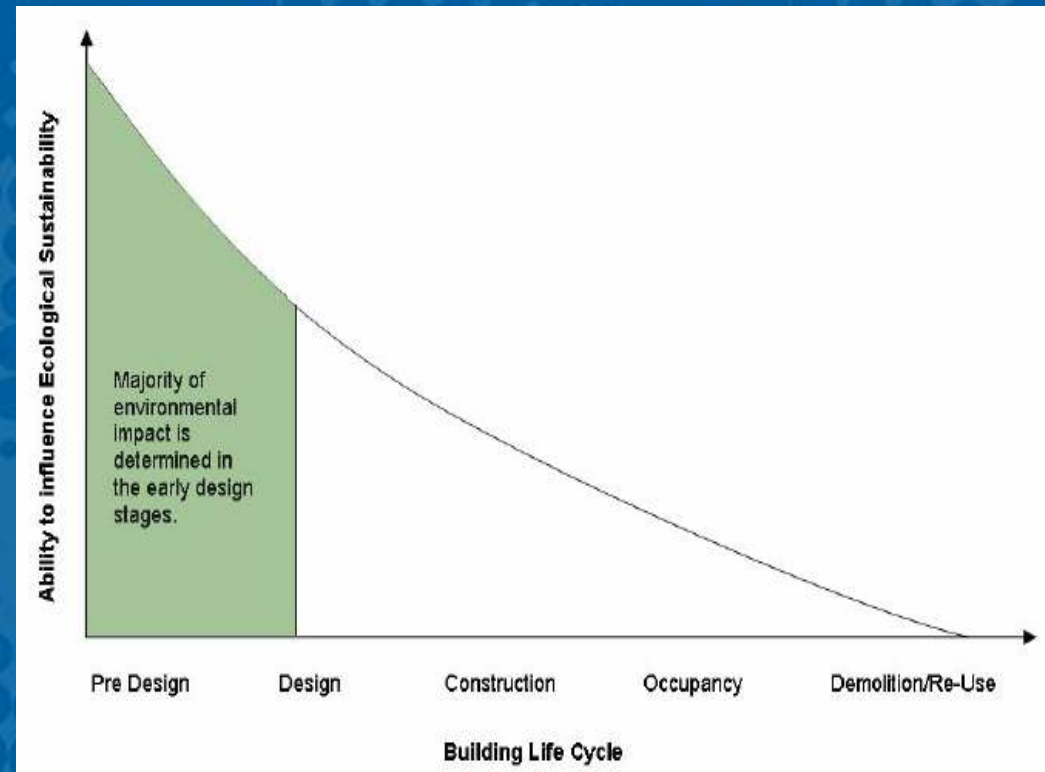
Climate responsive

3D Computer simulation

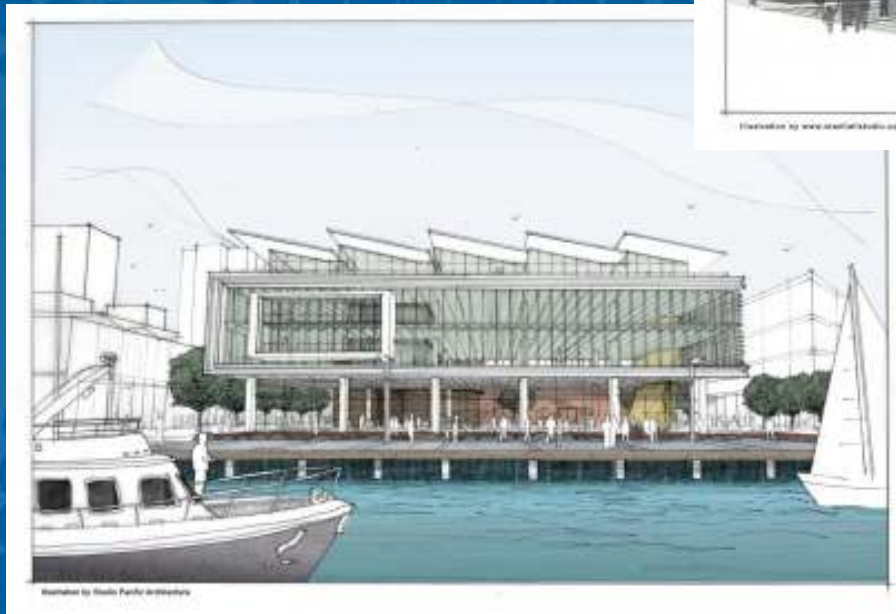
Benchmarking

Whole life costing

Consider ALL benefits



Site 7, Wellington Waterfront



ESD Advice

3D Computer Simulation, and computer analysis of:

Façade Thermal and Visual Performance

Daylight Availability

Artificial Lighting

Occupant Thermal Comfort Analysis

Natural Ventilation Performance

Energy Consumption Benchmarking

Water Consumption Benchmarking

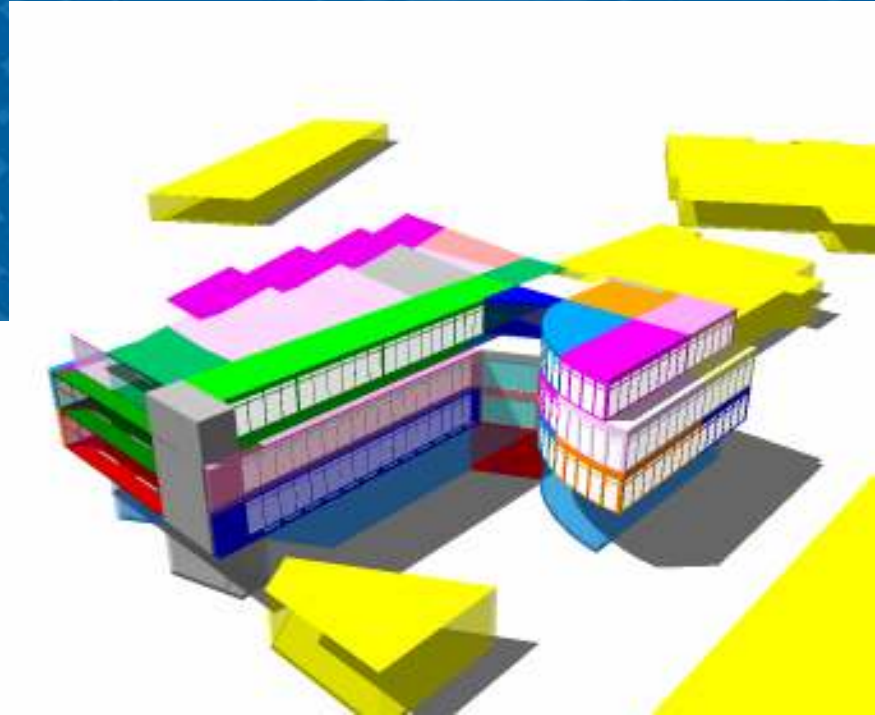
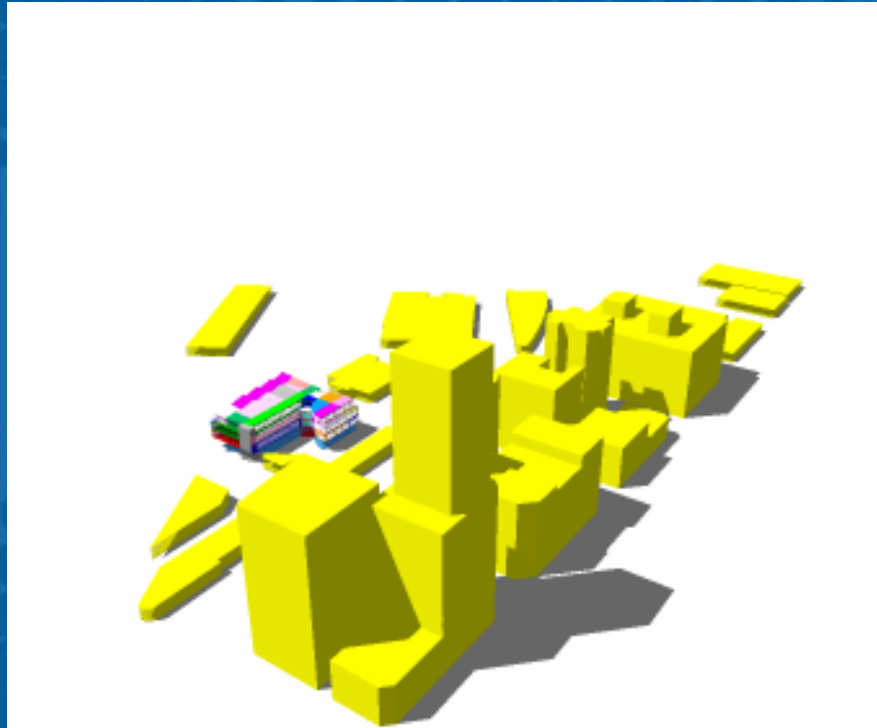
Building Code H1 Compliance

Greenstar Aus Pre-Assessment

Greenstar NZ Pilot Assessment



3D Computer Simulation



Green Features

Integrated design of building and services

Efficient solar shading and active facades

Exposed structure at perimeter to absorb heat

Predominantly daylight plus daylight control of lighting systems

'Mixed mode' natural ventilation and air conditioning

100% outdoor air supply with heat recovery

Demand controlled heating, cooling and ventilation

Heat pump heating and cooling

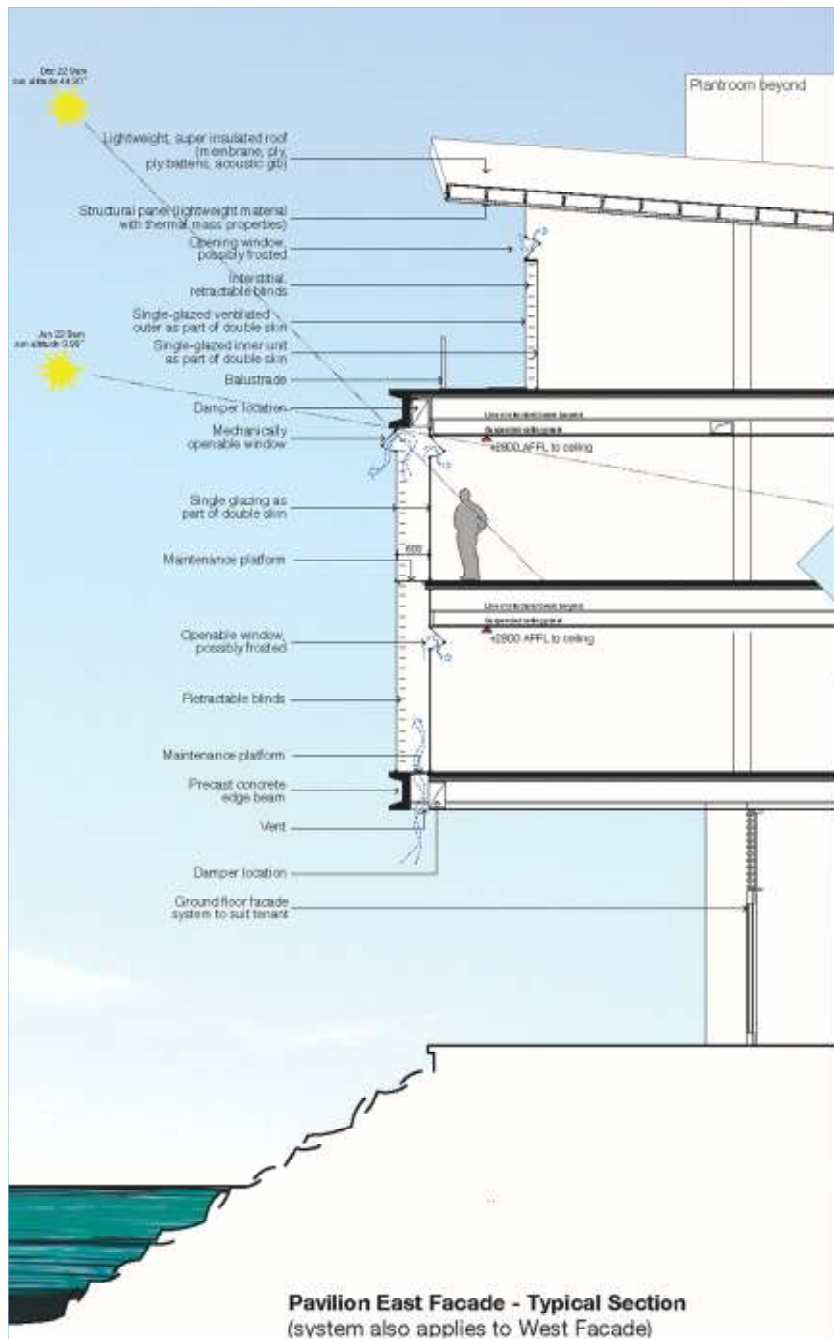
Solar water heating

Rainwater collection and recycling

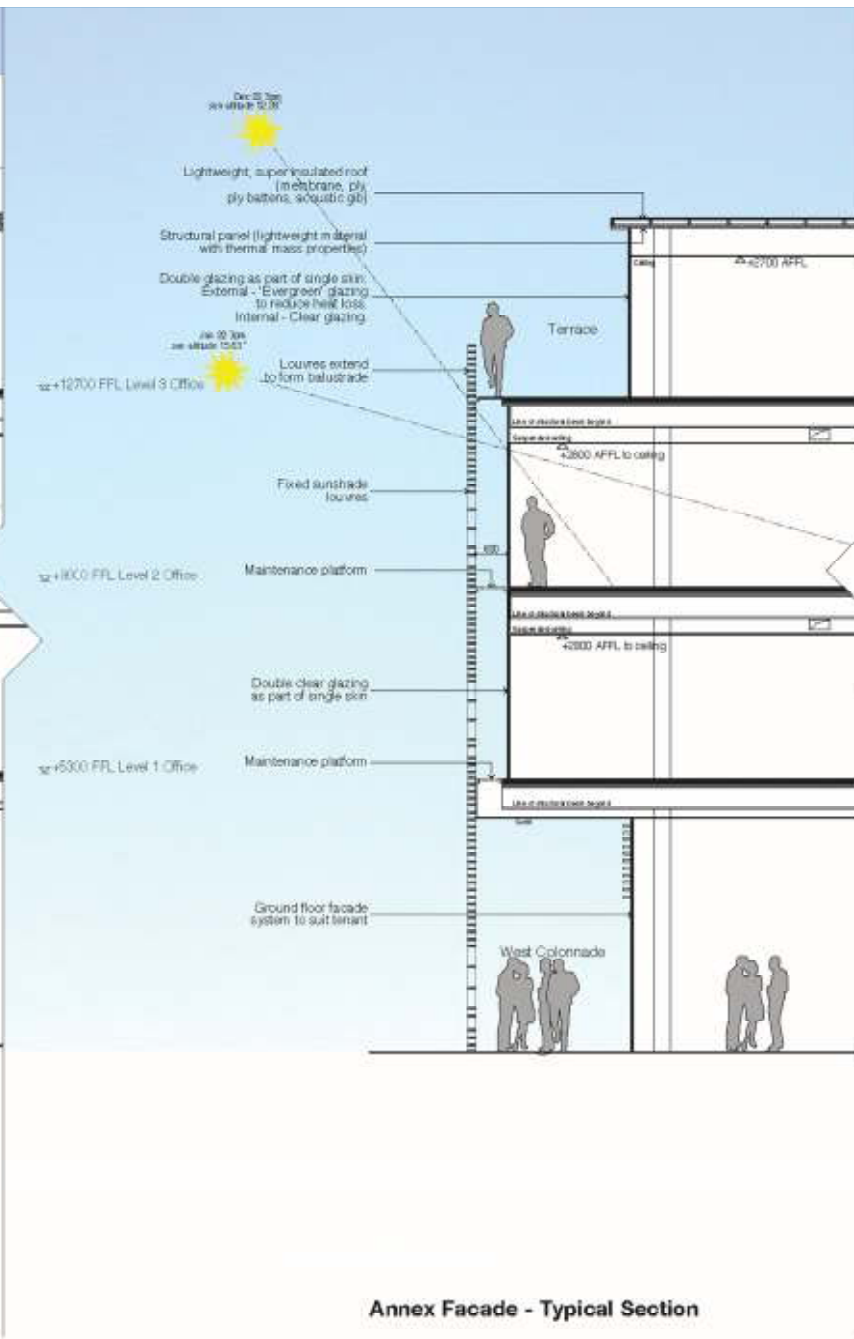
Water efficient sanitaryware (inc waterless urinals)

Environmentally preferable materials selection





Pavilion East Facade - Typical Section
(system also applies to West Facade)



Annex Facade - Typical Section

Building Management System

- Automatic control of solar blinds and sun louvres
- Automatic control of windows for natural ventilation
- Automatic control of plant and systems
- Energy monitoring
- Water use monitoring
- Integrated with security system
- Integrated with lighting control system



GreenStar

Green Star - Office Design v2

Name of Building:	Site 7, Kumutoto
State:	TAS
Type of Assessment:	New Building

RATING RANGE



4 Star 5 Star 6 Star

	Points Available	Points Achieved	Category Score Achieved	Points TBC	Potential Category Score
Management	12	9	75%	0	75%
Indoor Environment Quality	26	18	69%	2	77%
Energy	24	14	58%	0	58%
Transport	10	10	100%	0	100%
Water	12	11	92%	0	92%
Materials	14	11	79%	0	79%
Land Use and Ecology	6	2	33%	1	50%
Emissions	14	6	43%	0	43%
Innovation	5	0	n/a	0	n/a

Site 7, Wellington Waterfront



Beca Buildings ESD Activities

- Specialist Buildings ESD Advisory Service
- Active participation in NZGBC
 - eg C Price, Director, Chair Technical Sub-committee
 - A Barbour, Rating tool Sub-committee
- Delivery Green Buildings
 - eg South Christchurch Library
 - Site 7 Wellington (Meridian)
 - Singapore National Library
- Landlord and Tenant Advice on Green Buildings



Thank You

- Comments and Feedback

