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### **Sustainability and Facility Management**

Mr Adam Beck Senior Sustainability Consultant Arup Sustainability

### In Association with:













Leading the Australian property and construction industry in collaboration and innovation

## SUSTAINABILITY TOOLS OVERVIEW



## **Drivers for this Study**

- Improve the use of City Plan and the development assessment (DA) process to encourage and reward sustainable development outcomes
- Work with developers who are designing and constructing sustainable developments
- BCC is receiving a growing number of sustainable development applications
- Innovative designs are difficult to assess
- Sustainability is about integration
- Timeliness of assessment
- Multitude of rating tools confusing
- Promotion of sustainable development





## **Study Focus**

Assess the range of sustainability tools available in Australia

Determine the suitability of the tool for use in the development assessment process:

- Influence sustainable outcomes early in the DA process
- Assist DA sustainability team
- Measure for awarding incentives
- Ease of checking compliance





## Phase 1:

### Review Rating Tools and Their Ability to Suit Council's Needs

- Identify tools for Evaluation
- Define Evaluation Criteria
- Review tools against criteria and develop database
- Review relevant papers and articles
- Consult with Project Steering Group (workshop and one-onones)
- Presentation to the Sustainability Working Group

### **Deliverables:**

- Evaluation paper
- Database of tools against BCC's criteria





## Phase 2:

## Evaluate Shortlisted Tools in the Context of the Regulatory Planning Framework

- Review DA material for two 'sustainable' developments
- Review developments against the requirements of shortlisted tools
- Gap analysis
- Review suitability of tool indicators in Brisbane context
- Assess requirements for inclusion of tool into the planning scheme

### **Deliverables:**

- Assessment of DA against tool requirements
- Findings and recommendations in final report





## **Rating Tools – Development History**

- Energy Tools
  - Energy efficiency and greenhouse was initial focus
  - Quantitative and relatively easy to measure
  - 1993 development of the Nationwide Housing Energy Rating Scheme (HERS)
  - NatHERS software developed and led to state specific energy software such as BERS, FirstRate etc
- Environmental Tools
  - Emergence of benchmarks such as BREEAM (1990) /LEED (2000)
  - Australia developed own versions ie ABGR, BASIX, Green Star, NABERS

- Moving towards sustainability
  - Tools starting to broaden from environmental to incorporate social, economic indicators
  - Also integration into the Development Assessment process ie Melbourne Docklands/ SPeAR®
- Life Cycle Assessment (material specification)
  - Fields of LCA and material specification have generated tools ie LCADesign, LCAid and EcoSpecifier





## **Office / Commercial Tools**

• Green Star



• **ABGR** – Australian Building Greenhouse Rating



• LCADesign – Life Cycle Analysis of Design









## **Residential Tools**

• **BASIX** - Building Sustainability Index



BERS - Building Energy Rating
Scheme



• FirstRate

### FirstRate

 NatHERS - Nationwide House Energy Rating Software



Sustainable Housing Code Sustainable Housing Code





## **Combination Tools**

(Residential/Office/Others)

 BREEAM – Building Research Establishment Environmental Assessment Method



 LEED – Leadership in Energy and Environmental Design

• **SPeAR®** - Sustainable Project Appraisal Routine



THG Eco Index



NABERS: National Australian
Built Environment Rating System





### ArupSustainability





• Melbourne Docklands ESD Guide



## **Evaluation Criteria**

- 1. Coverage of sustainability issues
- 2. Summary of rating tool features
- 3. Description of Tool's coverage
- 4. Pros and cons of using the tools and its limitations
- 5. Benchmarking against best practice
- 6. Ability of the tool to verify/quantify/measure sustainability issues
- 7. Ability of the tool to compare between developments
- 8. Ability for the tool to be updated to reflect improvements in best practice
- 9. Degree of acceptance/recognition by development industry practitioners and regulators of the credibility of the tool
- 10. Current usage of the tool in Australia
- 11. Proposed changes to the rating system
- 12. Ease at which the tool can be communicated





## **Coverage of Sustainability Issues**





## **Results**

#### FINAL RESULTS OF PRIORITY EVALUATION

	Residential							Commerci	al	Other				
	BERS	NatHERS	FirstRate	AccuRate	BASIX	SHC	ABGR	GreenStar	LCADesign	SPeAR	LEED	BREEAM	THG EcoIndex	Melb Dockl.
High Priority	11	10	9	10	12	8	11	12	10	16	11	11	14	16
Medium Priority	9	6	7	7	9	4	11	13	7	8	8	7	9	11
Low Priority	4	5	0	0	1	5	7	2	2	1	1	1	0	2
TOTAL	24	21	16	17	22	17	29	27	19	25	20	19	23	29

#### TOOL RANKING RESULTS (WORKSHOP 30/03/04)

	Residential					Commercial				Other				
	BERS	NatHERS	FirstRate	AccuRate	BASIX	SHC	ABGR	GreenStar	LCADesign	SPeAR	LEED	BREEAM	THG EcoIndex	Melb Dockl.
Ranking Definition	Number of Votes					Number of Votes			Number of Votes					
Ranking # 1(best)				Х	XXXX	ХХ	ХХ	XXXX	Х	XXXX			Х	ХХ
Ranking # 2	Х		Х		XX	XXX	XXX	XXX	Х	X	Х			XXXX
Ranking # 3		XX	ХХ	XXX			ХХ		XXXXX	Х		X	XXXX	
Ranking # 4	XXXX		Х	Х							ХХ	XXX		Х
Ranking # 5		XXX	Х	Х	Х						XXX	XXX	Х	
Ranking # 6 (worst)	Х	Х	ХХ			ХХ				Х	Х		Х	
PREFERRED TOOL														





## **Tools Taken into Phase 2**

Overall 5 tools performed best against the evaluation criteria and were considered worthy of taking forward into Phase 2:

**Commercial**: Green Star

- Residential: BASIX Sustainable Housing Code
- Combined: Melbourne Docklands ESD Guide SPeAR®





## Phase 2 Tasks

Undertake Gap Analysis to:

- 1. Identify potential burden on Council & developer
- 2. Identify suitability of indicator sets in tools
- 3. Identify DA strengths & weaknesses (level of detail, etc)
- 4. Identify what ESD issues are being addressed

### **Council chose three tools:**

BASIX SPeAR® Docklands ESD

### And two Case Studies:

DA 1

DA 2





### **PROJECT DESCRIPTION**

**PROJECT NAME:** 

PROJECT DESCRIPTION:	Mixed-use development comprising residential (units) and non- residential uses (offices, shop warehouse, display sales/showroom, restaurant).
STAGE OF DEVELOPMENT:	Preliminary Planning Approval / Preliminary Design
EXISTING ZONING:	Light Industry
TOOL USED:	Melbourne Docklands ESD Guide
GAP ANALYSIS TIMING	12 hours





**DA 1** 



### **INFORMATION GAP ANALYSIS – Melbourne Docklands ESD Guide**

% of DA information addressing tool indicators

INDICATOR	DA INFO %	INDICATOR	DA INFO %
Site/Outdoor Space	25%	Energy	44%
Atmosphere	0%	Building Materials	0%
Water Cycle & Wastewater	0%	Indoor Environmental Quality	16%
Transport	100%	Waste	0%
Innovation	25%	TOTAL	23%



## 

ISSUES SUMMARY	
OVERALL LEVEL OF DA DETAIL:	Low-Medium
LEVEL OF INFORMATION DETAIL REQUIRED FOR THE TOOL:	High
LEVEL OF EFFORT TO INCREASE INFORMATION DETAIL:	High
KEY INFORMATION GAPS:	Waste, Materials, Water, Atmosphere
APPROXIMATE TIME FOR COUNCIL TO REVIEW AND CHECK:	1-2 Days (based on level of detail and structure of the DA)
APPROXIMATE TIME FOR TOOL ASSESSMENT BY DEVELOPER:	2 Days







### Can this be a called a sustainable development? Can a rating tool help?





## **Coverage of Sustainability Issues**



## Key Findings – Phase 2

- Tools have a focus predominantly at detailed design
- Inconsistent reporting
  - Lack of sustainability reporting framework
  - Lack of integration of issues
  - Resource implications for BCC
- Some developers willing to try and incorporate sustainability into developments, however...
- Danger it will be used to get 'unsustainable' developments up with reputation issues for Council
- Lack of economic reality in proposals at preliminary approval stage has implications for what gets built
- Site contextual issues generally absent in the tools





## Conclusions + Recommendations



## **Key Issues**

Rating Tools are not the panacea.

They have limitations:

- only applicable to specific development types
- too late in the development assessment process
- rarely cover the spectrum of sustainability issues









## **Sustainability Framework**

Moved away from the need for a tool to integrating and embedding sustainability at all levels:

- Corporately
- Strategic Planning
- Local Area Planning
- Development Assessment





## **Integrating Sustainability**





## A Staged Approach



### Time

BRISBANE CITY

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\* The sustainability assessment and reporting system includes aprocess of using a range of tools for the key stages in planning namely Strategic Planning, Local Area Planning & Development Assessment



## Recommendations

### **Phase 1 – Immediate System Improvements**

Phase 1 responds to Council's immediate need to improve consistency and transparency in dealing with applications for sustainable developments.

### Phase 2 – Tools Adoption

Phase 2 recommends Council define sustainability outcomes for the City and potential adoption of selected rating tool(s).

### Phase 3 – Integration

Phase 3 provides Council with a suite of tasks that integrate sustainability throughout the regulatory planning process, ensuring that all developments are subject to sustainability assessment and reporting and not just a select few. Phase 3 builds on the previous work undertaken in Phase 1 and 2 of the recommendation.





## Critical Sustainability Issues for Brisbane?



## Conclusion

- Rating tools provide a simple and effective way of measuring the performance of different aspects of sustainability.
- There is a fundamental need for BCC to define sustainability priorities and outcomes and establish an integrated framework.
- BCC taking the recommendations forward via a number of projects:
  - Sustainability Policy
  - Principles for Sustainable Development in Brisbane
  - ⋟ \$500 Sustainability Rebate Scheme
  - How Sustainable is Your Home?
  - Local Best Practice Sustainable Developments Project





## Documenting Local Best Practice Sustainable Development



## **Best Practice Study**

- Aim
  - Problem: rating tools lack Brisbane-specific urban development sustainability benchmarks
  - Solution: "to clearly define and document what constitutes a sustainable development for Brisbane and its unique subtropical characteristics"
  - Study plays an important role in mainstreaming key elements of sustainable design, construction and operation for existing/future development in Brisbane
- Scope
  - Development Types
    - residential (both detached, multi-unit and subdivision), commercial, industrial, refurbishment, public facilities
    - Must be built and operational and within South East Queensland only
- Output
  - "New Design for Subtropical Living in Brisbane" magazine (public document)
  - BCC internal education (best practice case studies) providing much needed record on SEQ-specific sustainable urban development





## **Best Practice Study**

- Key Sustainability Criteria
  - 30 case study developments selected which best demonstrate BCC's "Principles for SD in Brisbane"
    - Water, Waste, Transport, Energy, Adaptability, Community, Land, Affordability, Materials, Passive Design, Natural Environment, Education
- Trends
  - No case studies met all criteria
  - 60% of case studies located away from key services and public transport
  - Majority of case studies incorporated energy, passive design and water initiatives
  - Adaptability, affordability, waste and transport were not considered in most
- Recommendations
  - Further in-depth study required to confirm initiatives and developer trends
  - Sustainable Urban Development checklist incorporating case study findings
  - Align with national and international best practice
  - Undertake proactive and thorough benchmarking of urban development and incorporate into regulatory framework







# Incorporating Sustainability into Developments



### Rating tools – maximising value







## **Sustainable Design Process**







## **Questions?**

