

Planning by rating scheme: genealogy, scales of application and ways forward for the formalised rating approach to urban development approval

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ABSTRACT

The use of rating schemes has emerged in recent decades as a popular planning tool to provide means to assess the performance of development proposals in order to meet desired sustainability objectives. This paper seeks to explore the validity of the formalized rating approach and asks whether it is prudent to consider applications for developments of a larger scale. A brief history and genealogy of rating schemes is presented, demonstrating that while the approach has been extended to small scale residential and commercial developments (i.e. *BASIX* and *Green Star*) it has not generally been used at the local area scale applicable to planning for comprehensive development sites (master-planned communities, transit oriented developments and other structure plans generally). Key issues with the formalized rating approach are raised drawn from interviews with the creators of particular schemes, persons who have brought schemes through to the marketplace, developers and consultants forced to use ratings schemes as part of development application processes, and planners charged with assessing developments under these frameworks. Issues raised include the variable impacts of particular schemes, the use of minimum standards/benchmarks, and the demands placed on users. Questions are then formed as to where the use of the formalized rating approach is headed and whether it is either feasible or desirable to apply them at the local area scale of urban development.

INTRODUCTION

The popularity of sustainability rating schemes as planning tools to provide means to assess the performance of development proposals is a trend that has not gone unnoticed by many in the planning and development professions, especially those directly confronted with rating schemes in their day-to-day work tools such as *BASIX* and *Green Star* are now central to the appraisal and approval of commercial and residential projects in different jurisdictions in Australia, and there is interest in government generally in improving these tools and in expanding the applications of this approach at larger scales and to broader aspects of urban development, evidenced by the extension of *BASIX* to multi-unit residential developments in NSW this year. But there is still much uncertainty as to the value of rating schemes as a planning tool in terms of delivering on core sustainability objectives and debates as to how these tools should best be developed.

Our interest in this issue relates to a project currently underway in the Urban Research Program at Griffith University that seeks to develop a diagnostic tool to rate the residential travel performance of large urban land use developments. This project aims to measure the extent of travel made and the modes of travel used by residential populations and, with the assistance of accessibility analysis techniques, to use this information as a means to rate the effect of a development's location and design on residential travel (for further information see Burke and Brown 2005a; Burke and Brown 2005b or the paper by Burke and Brown also being presented at this conference). As we are interested in ensuring the project can deliver an appropriate, useful and marketable rating tool, it is useful to review the current view of performance rating schemes currently available for residential and commercial development projects in Australia.

The focus on the paper is on the diversity and genealogy of existing schemes, and on the perceptions and attitudes of developers, development assessors (especially local government), consultants and other agencies who have developed, used or promoted these schemes.

RATING SCHEMES

A brief review of available tools and commentary in the Australian and international literature was conducted to identify the key issues and to clarify what should be taken forward for further investigation. This was greatly assisted by the work of Arup and the Brisbane City Council in its recent review of sustainability rating schemes (Arup Sustainability 2004a, 2004b).

Diversity of Existing Schemes

As noted by Bennett (2004) sustainability is a broad topic and rating schemes have emerged that focus on a range of different issues across sectors. There are tools that rate materials (i.e. timber), products and proprietary items (i.e. white goods such as air conditioners), energy consumption, indoor environmental quality, water consumption, transport, and various other facets of design. Some tools focus on new buildings, others on existing buildings. Some focus on one particular sector or issue (i.e. the *Australian Building Greenhouse Rating*), others focus on multiple indices across a range of sectors and issues (i.e. *BASIX*). And in their use some rating schemes are voluntarily applied by developers, others are mandated by legislation in particular jurisdictions. Further, there are a range of development types for which no rating schemes are currently available in Australia, such as warehouses, factories and service stations.

The recent review by Arup for Brisbane City Council (see Crawley, Beck and Berry 2004) is particularly useful given its evaluation and classification of 13 local and two international examples of sustainability rating schemes for developments. A summary table of the Australian tools discussed is provided in Table 1.

	Tool Name	Location	Creator	Coverage
1.	Australian Building Greenhouse Rating (ABGR)	Australia	Sustainable Energy Development Authority (SEDA, NSW), Sustainable Energy Authority Victoria (SEAV), Sustainable Energy Development Office (SEDO, WA), and Qld Environmental Protection Agency	Commercial developments
2.	Green Star	Australia	Green Building Council of Australia	Commercial developments
3.	Life Cycle Analysis of Design	Australia	Australian Cooperative Research Centre for Construction Innovation	Commercial developments
4.	Sustainable Housing Code	SEQ, Australia	South East Queensland Regional Organisation of Councils	Residential developments
5.	Building Energy Rating Scheme (BERS)	SEQ, Australia	Solar Logic	Residential developments
6.	Building Sustainability Index (BASIX)	NSW, Australia	NSW Department of Infrastructure, Planning and Natural Resources	Residential developments
7.	AccuRate	Australia	CSIRO	Residential developments
8.	Nationwide House Energy Rating Software (NatHERS)	Australia	CSIRO	Residential developments
9.	FirstRate	Vic., Australia	Sustainable Energy Authority Victoria	Residential developments.
10.	Melbourne Docklands ESD Guidelines	Vic., Australia	Docklands Authority and VicUrban	Commercial, residential and other developments
11.	Sustainable Project Appraisal Routine (SPeAR®)	Australia	Arup	Commercial, residential and other developments
12.	THG Eco Index	SEQ, Australia	The Heilbronn Group	Residential and other developments
13.	National Australian Building Environmental Rating System (NABERS)	Australia	Commonwealth Department of Environment and Heritage	Commercial and residential developments

Table 1 Coverage of sustainability rating schemes (adapted from Crawley et al. 2004, pp. 34-35)

The reason for the profusion of different schemes is that in general each scheme was developed in a particular location or jurisdiction for a particular purpose. And this leads to differences in intent, content, procedures and outputs.

A number of the schemes have specific tools to assist developers to identify means to improve the performance of their developments (i.e. *Green Star*). These schemes therefore act as diagnostic tools - isolating problems, drawing them to the user's attention, and suggesting means to ameliorate them.

GENEALOGY OF THE RATING SCHEME APPROACH

Genealogically, sustainability rating schemes appear to have emerged firstly as energy labeling schemes for small scale individual appliances as part of demand management approaches to energy consumption. Energy labeling was introduced in some states in Australia in 1986 to appliances such as refrigerators. The *Minimum Energy Performance Standards* (MEPS) regulations mandate a minimum standard that all appliances manufactured or imported into Australia must meet. However, an additional energy labeling is also mandated for a series of products - with the 'dial' label used to illustrate the varying efficiency of appliances on the market. An indicator representing an appliance's energy consumption (generally kWh/year) is placed along a clockwise arc of 6 stars on a label that is attached at the point of sale, as shown in Figure 1 (Harrington and Damnic 2001:1-2).

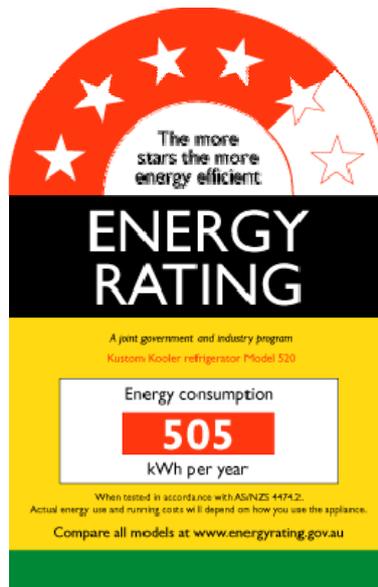


Figure 1 Australian energy rating label (source: <http://www.energyrating.gov.au/con3.html>)

Between 1996 and 2000, the rating scheme approach was raised to the scale of the individual dwelling in Australia. The Nationwide House Energy Rating Scheme (*NatHERS*) was developed under the auspices of the Australian and New Zealand Minerals and Energy Ministerial Council (ANZMEC). Within the *NatHERS* framework, the Victorian Government produced its own software, now known as *First Rate* (Greene and Pears 2003:45-46). In July 2004, NSW introduced the *BASIX* rating scheme for single dwellings and dual occupancy in Sydney, which has since been made mandatory throughout NSW. The *BASIX* tool "calculates the house or unit's energy and water scores based on a range of data, including size, location, design features and fixtures" (Department of Infrastructure Planning and Natural Resources 2005).

This year the rating scheme approach is being raised to the scale of multi-unit dwellings for the first time with the development and release of *BASIX for multi-unit residential developments* in NSW, which became operational on October 1, 2005. However schemes for large commercial office developments have been operationalised already, such as the voluntary *Australian Greenhouse Building Rating Scheme* (AGBR) and *Green Star* schemes.

It is suggested that there may be an expansion of the rating scheme approach to broader scales of development. There are a few tools currently being used for sustainability assessments as part of development approvals at the community or local area scale. For specific sectors a limited number of examples exist. For instance, the *Smart Growth Scoring Table* is used by RTI International to rate locations for possible urban development (Research Triangle Institute International 2002). Two comprehensive tools are in development though: the U.S. Green Building Council is working with the Congress for New Urbanism to develop *Leadership in Energy and Environmental Design (LEED) for neighborhood developments*, which includes for appraisal of the transport/land-use relationships of a development proposal (US Green Building Council 2005). And the Urban Development Institute of Australia (UDIA) Queensland Division are currently developing the *Enviro-development* framework, which may result in a rating tool applicable at the local area scale in the Queensland context (Urban Development Institute of Australia 2005).

At the city/region scale there are even less examples, though state of the environment reporting for cities is becoming more uniform in nature, encouraged by projects such as the *Cities Environment Reports on the Internet* (www.ceroi.net), and we may see rating tools being developed at this scale in the future. In the transport/land use field, the *Sprawl Index* (Ewing, Pendall and Chen 2004) has been used as a research tool to compare performance across cities in the US, and uses a similar approach.

The application of the rating scheme approach at various scales is represented in Figure 2.

SCALE	Single Appliance Scale	Single Dwelling Scale	Multiple Dwelling Scale	Community /Local Area Scale	City/ Region Scale
MEASURE	Household appliance sustainability measures	Single unit residential sustainability measures	Small-scale development sustainability measures	Community/ local area sustainability measures	City/region sustainability measures
EXAMPLES	i.e. Commonwealth mandatory energy labelling regime for appliances such as clothes washers, clothes dryers, air conditioners and dishwashers. Commonwealth <i>Minimum Energy Performance Standards (MEPS)</i> for appliances such as refrigerators and freezers, water heaters, and air conditioners	i.e. Energy efficiency measures within the Building Code of Australia and the various rating schemes for new homes in each state such as <i>FirstRate</i> (SEDA VIC) and <i>Nationwide House Energy Rating Software</i> (NatHERS – CSIRO); NSW <i>Building and Sustainability Index (BASIX)</i>	i.e. <i>BASIX</i> for multi-unit residential developments (NSW); <i>Australian Buildings Greenhouse Rating Scheme</i> (AGBR) calculator; Green Building Council of Australia's <i>GreenStar</i> for commercial office developments.	i.e. <i>Smart Growth Scoring Table</i> (RTI International); <i>LEED for Neighbourhood Developments</i> (US Green Building Council); <i>Griffith Residential Travel Performance Rating Tool</i> (Burke and Brown a)	i.e. <i>Sprawl Index</i> for rating city/ regions (Ewing, Pendall and Chen 2004).

Figure 2 Applications of sustainability rating schemes at increasing scales

COMMENTARIES ON RATING SCHEMES

A series of discussions was held with a small number of key actors in the development industry in Queensland and New South Wales, including representatives of major developers, consultants, local government and state government.

Using a pre-prepared sheet, semi-structured interviews were conducted with:

- Ms Cathy Crawley (ARUP Sustainability)
- Mr Guy Gibson and Mr Paul Edwards (Delfin Lend Lease)
- Mr Andrew Aitken (Brisbane City Council)

More informal discussions were also held with representatives of the Urban Development Institute of Australia, the NSW Department of Planning, and LandCom.

This small set of professionals cannot be considered representative of the full set of actors working with development-based rating schemes in the Australian context, and is limited to persons working solely within two Australian states, however the sample is considered sufficient to provide some measure of the attitudes and perceptions that exist at present.

We wish to focus on a set of specific issues arising from the literature and from the discussions. These are the purpose of the schemes, their effects (including both desired and undesired effects),

the burdens placed on key actors by these schemes, and issues specific to the development of such a scheme at the local area scale.

Purposes of Sustainability Rating Schemes

There are a number of reasons why sustainability rating schemes are developed and implemented. Some are used to mandate minimum performance from development as part of assessment regimes (i.e. *BASIX*). Others are used solely to stimulate better outcomes from all spectra of industry via voluntary ratings (i.e. *AGBR*, *Green Star*). The first approach targets underperformers, the latter targets both those who are laggard and those who are leaders in sustainability. Yet most respondents noted that underpinning each of these approaches is an underlying motive: embedding sustainability within firms in the planning, design and construction phases of their operations. Almost universally the promotional material supporting these schemes, including websites, media releases and brochures, speak of them as being about improving the performance of new developments, particularly by improving the design and construction decisions of the development industry (i.e. see www.agbr.com.au; www.basix.nsw.gov.au). This view of the world - the rating scheme as 'behavior change agent' - does not necessarily mesh with the experiences of the schemes thus far brought to market (see below).

The capacity for rating schemes to allow for benchmarking and comparison was noted by the interview panel and in the review materials as a key purpose, and it is this that may stimulate better performance on sustainability issues. Bennett (2004) suggests such schemes provide "a kind of currency in order to compare one building's sustainability against another building and/or against an industry 'norm'" which he believes to be happening already in the Australian context. Additionally he suggests that these schemes are "providing the mechanism for rewards for those who are pushing the current thinking" and "giving the market a simple yardstick for how sustainable they want their project to be." When there are lists of ratings for existing developments widely published, such as the *AGBR* ratings for buildings across Australia (available via www.agbr.com.au) there is an obvious incentive for improvement, and rewards for those who are achieving best practice. Further, as Gonchar (2005:18) notes, "without such a metric, it would be easy to 'greenwash'". An accredited scheme can establish what is 'green' and make it marketable. If used correctly this may be a good thing for both the market and the environment.

Of course, the reaction of the industry to these schemes is varied, and relates to whether schemes are voluntary or are legislated. The industry encourages voluntary schemes in preference to legislated ones (i.e. see Property Council of Australia 2004), yet the take up rate for the voluntary schemes, such as *Green Star*, is far from approaching universality. Cathy Crawley suggested that only those developers 'who are looking for market advantage or who are altruistic' are seeking to use voluntary schemes for their purposes.

Effects of Rating Schemes

Both the materials reviewed and the interviewees were unanimous in stating that rating schemes are not performing well in the Australian context at delivering improved sustainability outcomes. One reason is confusion about the range of schemes available (noted by almost every respondent). However the issues identified as most important for our research included:

- the nature of rating schemes as an 'end-of-pipe' solution,
- the coverage and applicability of individual schemes, and
- the reaction of industry to such schemes.

Perhaps the greatest concern of the interview sample related to the problem of rating schemes as being an appraisal tool at the end-stage of building assessment, with unpredictable results. As many of the rating tools are only applicable at the end of the building phase, many of the issues are not effectively considered as part of initial planning approval - and therefore opportunities to improve

performance are often lost long before the rating tool is actually applied. Guy Gibson noted that tools such as *BASIX for multi-unit residential developments* work better in a sector where development and construction are integrated, however sustainability rating schemes work less well for 'land developments where subdivision and construction are separated'. This is especially so when the rating tool may focus solely on construction-related issues.

Secondly, the issues covered within many schemes are limited, which is both a strength and a weakness. While greenhouse gas emission ratings obtained via *AGBR* are simple and relatively easy for the community to understand, a number of sources of household emissions (i.e. vehicular transport) are not captured and a greenhouse gas rating is not sufficient to rate the overall sustainability of a dwelling. The majority of existing schemes focus solely on issues of dwelling design and construction, ignoring numerous issues relating to subdivision and urban design. One of the interviewees suggested there is significant interest in the *LEED for Neighbourhood Developments* tool amongst planners, as this may allow for other sustainability issues to be included earlier in the planning phases of development.

Third, a conservative business ethos in the development industry ensures a pragmatic reaction to rating schemes, especially legislated schemes. Often this means the inclusion of only no- or low-cost measures, applying the next measure on the cost spectrum, until such time as the minimum standard or client target is reached (Demaid and Quintas 2005:5-6). This is hardly the comprehensive 'behaviour change' in firms that the promoters of rating schemes are seeking. Whilst legislated schemes are seen as encouraging minimum performance, it was also suggested by a number of respondents that they can, at times, actually stymie best practice sustainability by creating delays and other problems for projects using innovative measures. But there were also numerous positive experiences identified throughout the discussions with industry and development assessors. These related to an ability to market a product as superior - 'a point of difference' - in a contested field, and there were some respondents willing to suggest the schemes could have significant positive effects. Paul Eagles of Delfin Lend Lease suggested the schemes can create a 'testosterone effect' where people 'want to beat each other' and achieve the best outcome, which 'creates innovation and leads to better outcomes all round'. He also suggested they 'help us to push change through our sub-contractors and suppliers', which suggests changes throughout the manufacturing stream.

Burdens Created by Sustainability Rating Schemes

There is a perception that the burdens and demands on both developers in preparing proposals and on development assessment staff in appraisal are significant.

In terms of developer workloads, whether in gathering additional information or in arranging for assessment by external parties, most of the interview panel suggested that the majority of legislated schemes are not overly burdensome, as is sometimes suggested. The development industry representatives, however, suggested there were significant issues with cost, especially in information gathering and in conducting the appraisal, although one respondent hoped 'these costs will decrease as the data collection becomes the norm'. The development industry has voiced its concerns about the imposition of additional workloads/costs via such schemes repeatedly (Property Council of Australia 2004).

The Brisbane City Council review found that approximately 70% of the schemes require extensive data collection on the impacts of the development, yet tools that address one specific aspect of sustainability such as energy or greenhouse gas emissions require only minimal data (Arup Sustainability 2004a:13). The broader concern of industry appears to be the proliferation of different schemes, and the capacity for more and more to be brought online by separate local authorities nationwide, leading to confusion and uncertainty (Perinotto 2003).

The interviewees were unanimous that in terms of development assessment, the majority of rating schemes are within the capabilities and resources of most local authorities, although it should be noted that the sample did not include representatives of any smaller local governments. The Arup Sustainability (Arup Sustainability 2004a:36) review found that assessment times for each of the tools varied between a number of hours (i.e. *FirstRate*, *NatHERS*) to days or weeks (i.e. *NABERS*, *AGBR*) or months (i.e. *Green Star*). This was closely related to the ease of data collection (which may include recording over significant time periods), verification processes and the coverage of the tool.

Conversely, there may also be some time-savings, in that standardized reporting formats and guidelines such as those used in rating schemes assists development assessors greatly. Cathy Crawly noted the potential to reduce the amount written on sustainability issues in development proposals without reducing the quality of information supplied, with the potential to 'save assessment staff hours'.

Rating Schemes at the Local Area Scale

There is mixed opinion as to the value of sustainability rating schemes at the local area scale. Whilst a number of the land use planners interviewed suggested it was either 'inevitable' or 'essential' those in the development industry were a little more circumspect. Partly, the conversations about rating schemes at the local area scale merged with discussions about the omission of land use planning issues from most schemes, and there was support for extension of the approach, though for some this was contingent on identifying a limited and discrete set of sustainability issues to be assessed. This question of whether a rating scheme covering multiple sectors (water, energy, transport, open space, etc.) can actually be moulded together into a discrete, coherent, logical instrument is an important one for us in our project to develop a tool to rate residential travel performance. The release of the draft of *LEED for Neighbourhood Developments* (US Green Building Council 2005) demonstrates just what such a comprehensive multi-sector scheme may look like: a rather unwieldy framework with enumerable possible means to demonstrate performance. Yet as one respondent noted, the local area scale 'may be where the greatest opportunities lie - and that transport issues are of growing importance'.

Indeed, the concept of rating residential travel behaviour had significant appeal, and there was interest from developers, assessors and consultants in the concept, suggesting there is merit in our research directions. Paul Eagles noted, 'travel has such a massive impact on sustainability I think this is a great idea'.

And yet, it was also questioned whether to develop a new rating scheme at all. Respondents from industry and from development assessment both suggested any person working on innovative ways to measure urban sustainability should investigate means to embed their work into existing tools, if possible. Paul Eagles (again) summed this up most clearly, pleading 'please don't add another tool to a crowded market place just for the sake of it'.

REFLECTIONS

From the commentaries it is clear that a means to assess the performance of a development proposal cannot be developed without recognising the typical environment in which studies are prepared and planning decisions made. This includes restricted budgets, limited timeframes, and few resources in local governments to carry out studies. Developers will not accept methods that raise their costs excessively or delay a planning decision - especially via the addition of non-value-adding red tape. And public authorities require methods that are scientifically defensible, of high quality, and useful in their decision-making processes (and hopefully are helpful in strategic planning and policy-making too).

The materials reviewed and the interview panel responses provided a number of suggestions as to how best to develop a rating scheme, particularly one focused at the local area scale. Adapting the strategies developed by Brown (2003:87) we would like to propose the following underlying principles that one should seek to apply when developing a sustainability rating scheme (or part thereof):

- Those seeking to develop a sustainability rating scheme need to fully understand how the integrated development planning process functions.
- Those seeking to develop a sustainability rating scheme need to understand the language, the tools and the thought processes that are used by developers, planners and assessors.
- Those seeking to develop a sustainability rating scheme must seek to identify means to assist proponents, planners and assessors to develop (and test) different scenarios that may reduce environmental impact and push development in more sustainable directions.
- A sustainability rating scheme should not unnecessarily impede the processes used by land use developers (in preparing applications) or development assessors.

CONCLUSION

The development of diagnostic tools to identify improvements to large-scale development approvals appears to have significant promise and there is interest in extending the rating scheme approach to the local area scale. This may assist in the appraisal of sustainability within planning and development processes. The findings of this small study give us some hope that our research has value as we move forward in developing a tool to rate the residential travel performance of new developments. Whilst we are not certain that a separate sustainability rating scheme will be the end product of our research project, the use of such a tool within a broader scheme remains an obvious route towards improving the sustainability of future land use development.

REFERENCES

Arup Sustainability (2004a) *Overview of Sustainability Rating Tools: Phase 1 - Evaluation Paper*. Brisbane: Arup/Brisbane City Council.

Arup Sustainability (2004b) *Overview of Sustainability Rating Tools: Phase 2 - Recommendations report*. Brisbane: Arup/Brisbane City Council.

Bennett, D. (2004) 'How Green is My Centre?' *Property Australia* 19(2): http://www.propertyoz.com.au/data/info/magazine/a_mag.htm.

Brown, A.L. (2003) 'Increasing the Utility of Urban Environmental Quality Information', *Landscape and Urban Planning* 65(3), pp. 85-93.

Burke, M. and A.L. Brown (2005a) 'Rating the Transport Sustainability of New Urban Developments: a starting point and ways forward', presented at *28th Australasian Transport Research Forum*, 28-30 September 2005, Sydney, New South Wales.

Burke, M. and A.L. Brown (2005b) 'Rating the Transport Sustainability of Transit Oriented Developments: will developments achieve objectives?' presented at *Transit Oriented Development: making it happen* conference, 5-8 July 2005, Fremantle, Western Australia.

Crawley, C., A. Beck, F. Berry and V. Swinson (2004) 'Assessing Sustainable Urban Developments: are rating tools the answer?' *Australian Planner* 41(4), pp. 33-36.

Demaïd, A. and P. Quintas (2005) 'Knowledge Across Cultures in the Construction Industry: sustainability, innovation and design', *Technovation* In Press, Corrected Proof:1-8.

Department of Infrastructure Planning and Natural Resources (2005) *About BASIX*, Sydney: DIPNR: <http://www.basix.nsw.gov.au/information/about.jsp>

Ewing, R., R. Pendall, and D. Chen (2004) 'Measuring Sprawl and Its Transportation Impacts', *Transportation Research Record* 1831, pp. 175-183.

Greene, D. and A. Pears (2003) *Policy Options for Energy Efficiency in Australia* Perth, WA: Australian CRC for Renewable Energy.

Harrington, L. and M. Damnic (2001) *Energy Labelling and Standards Programs throughout the World*, Canberra: National Appliance and Equipment Energy Efficiency Committee, Australia.

Perinotto, T. (2003) 'Anarchic' rules stifle developers', in *Australian Financial Review*, Sydney, 9 October 2003, p. 58.

Property Council of Australia (2004) *Response to the Proposed National Australian Building Environmental Rating System*, Canberra: Property Council of Australia.

Research Triangle Institute International (2002) *Smart Sites*, Piedmont, North Carolina: RTI International: http://geos1.rti.org/smartsites_beta1/WelcomePages/SmartSitesHome.asp

Urban Development Institute of Australia (2005) *Enviro-development: Draft Working Document*, Brisbane: UDIA Qld Division.

US Green Building Council (2005) *LEED for Neighborhood Developments Rating System - Preliminary Draft*, Washington, D.C.: US Green Building Council.